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WINTER NOTES FROM NEW MEXICO.

BY CHARLES F. BATCHELDER.

In December, 1882, I had the good fortune to pass three weeks at Las Vegas Hot Springs, New Mexico, and though at that season the species of birds met with were few in number, yet as most of them were quite abundant, I think some account of my observations may not be without interest. The following notes refer to the time between December 4 and 23.

The Hot Springs are in the northern part of New Mexico, in San Miguel County, six miles northwest of Las Vegas, and are situated in the cañon of the Gallinas River, just above where that stream emerges from the foot-hills of the mountains of the Spanish Range—the extreme southeastern range of the Rockies—into the elevated plains that are characteristic of a great part of the Territory. The town of Las Vegas, which is out on the plains, has an altitude above the sea of 6452 feet, while that of the Hot Springs is 6768 feet, the surrounding hills reaching several hundred feet higher. The climate is delightful at this time of year. The dry air and cloudless sky allow the warm rays of the sun to have their full effect, and heavy clothing is quite unnecessary, often unbearable. One can sit still on a warm sunny hillside with the birds singing around him, and look across at the shady side of the cañon opposite, yet white with snow that fell several weeks before, while on still, shaded pools on the stream below a supply

of ice is being harvested for the use of the hotels at the Hot Springs. The nights are quite cool, so that a thick skim of ice is formed nearly every night on water that is not in motion, but it disappears like magic before the morning sun. During the latter part of December there were several slight snowstorms, but the hot sun and dry air soon left no traces of them save in shaded spots out of reach of the sunshine. In the middle of the winter there is doubtless some severe cold, as would naturally be expected at such an altitude.

Just below the Hot Springs the cañon of the Gallinas gradually broadens out, and the hills become lower and farther apart before they finally sink into the plains and the cañon comes to an end. The stream itself first runs between low bluffs where it has cut its way through a small plateau of superficial gravel deposits, and then spreads itself out over a shallow, stony bed where the valley widens out as it approaches the broad plains that stretch indefinitely to the south and east, broken only here and there by some outlying low hill whose flat-topped ridge and steep, deeply eroded sides give it the appearance at a distance of a huge fortification.

In the lower part of its course the flow of the river is impeded in various places by rude dams made out of brush by the Mexican inhabitants of several little adobe villages. Small ponds are thus formed from which run ditches carrying the water to irrigate their outlying fields.

Above the springs the cañon narrows, and winds along for many miles shut in by steep, rounded hills, on whose barren sides only a scanty vegetation obtains a foothold among the gravel and loose stones and occasional ledges that form their surface. These hills are here and there varied by perpendicular cliffs that tower above the stream, while every now and then one comes upon a narrow ravine or side-cañon that winds its way back between the hills, gradually rising and becoming narrower and with steeper sides as it gets farther from the main cañon until it ends high up among the hills. These ravines are usually dry, though in some a feeble little stream struggles to exist.

The cañon itself varies greatly in its width. In some places the hills crowd down upon it until there is hardly room for a footpath between the brawling stream and the steep rocky sides. Again the hills retreat, and the cañon opens out into a little

valley whose level bottom here and there shows signs of cultivation, forcibly reminding one of the scarcity of land available for such uses. These openings are of small extent, seldom covering more than a few acres.

Through these level stretches the stream ripples along gently over its stony bed. Here it is about twenty feet wide, and is shallow, hardly more than a foot in depth, but in the narrower places it becomes more of a mountain torrent, and leaps noisily over the rocks, with clear, deep pools, and here and there a waterfall.

The bottom of the cañon, in places where it broadens out, bears patches of tall weeds and clumps of low scrub oaks, but there are few trees worthy of the name, except on the hills, which are wooded with a scattering growth of various species of Coniferæ, of which *Pinus ponderosa*, *P. edulis*, *Juniperus occidentalis*, and *Abies douglasi* are the commonest, named in the order of their abundance. *Pinus ponderosa* far outnumbers the others, and is most important, furnishing the chief supply of timber and firewood. On the more open parts of the hills there are low scrubby oaks growing mostly in thick clumps.

Passing the various hot springs that come boiling to the surface at numerous points along the stream, a short walk up the cañon brings you to one of the openings where the retreating hills leave a level stretch of a few acres. Among the thick clumps of low scrub oaks that are scattered over it, or in the large patches of tall dead weeds, I was sure to find companies of Juncos (*Junco oregonus* and *J. caniceps*) busily searching the ground for fallen seeds. Of all the species that I met with, the Juncos were decidedly the most abundant. They were to be seen everywhere; it was hard to find a spot they did not like; but these were their favorite haunts. Among the pines on the hills, or in the thickets of willows down the river, they were in small parties, but here they were in large flocks. They moved about a good deal, straggling along one or two at a time, though occasionally a number would fly in a tolerably compact flock. They were shyer and more restless than *J. hyemalis*, and quicker in their motions. They were noisier, too, and their notes seemed louder, but less harsh. I noticed no difference between the habits of the two species. They were always together in the same flocks, and seemed on the best of terms.

On my arrival (December 4) *J. caniceps* was much the more numerous, there being three or four of them to one *J. oregonus*, but as the time went on its numbers diminished, while those of *J. oregonus* increased, until by the middle of the month far the greater part were of the latter species. I think they were all slowly migrating, and that *J. caniceps* went first. As its ranks were gradually thinned out, fresh arrivals of *J. oregonus* filled the vacant places, so that their abundance on the whole remained about the same. Their numbers varied a little, however, from time to time; some days there were more Juncos than on others. December 20, in particular, I noticed them in unusually large numbers. Whether this had any connection with the fact that we had a snowstorm the following day, is one of those things that unfortunately cannot be proved.

These great stretches of weeds were favorite resorts, too, of the Pine Finches (*Chrysomitris pinus*); frequently at my approach a flock of perhaps fifty would rise from the weeds where they had been completely hidden as they clung to them feasting on their multitude of seeds. Then for a long time they would circle around overhead, sometimes going as far as the further side of the cañon, again confining themselves to a much smaller orbit, their circles varying from a hundred yards to a quarter of a mile in diameter. Finally they would settle in some other weed patch a short distance off, or even in a pine on the edge of the hills, unless they decided that their suspicions of impending danger were well founded, and so disappeared behind some hill as they sought another feeding ground elsewhere. Sometimes the flock as it circled round and round would break up into two, one of which would, after a while, either depart to some more distant place or return and mingle with the other.

In crossing these level stretches, the Gallinas, in its hurrying course, has cut its channel down through the superficial deposits, of which they are formed, to a considerable depth, and along the banks thus made there grows a fringe of bushes in which I occasionally found a solitary Song Sparrow (*Melospiza fasciata montana*) that dodged back and forth with a restless shyness that made its life by no means an easy sacrifice. Here, too, one day (December 12) I came across an immature *Zonotrichia intermedia*, the only one of this species met with during my stay. Possibly it was merely a straggler there, for a bird naturally of

such gregarious habits would hardly be contented to lead a solitary life, were it possible for it to find others of its kind anywhere in the neighborhood.

Following up the cañon farther I was often tempted to turn aside and climb the steep pine-covered hills that border it. Here my first greetings were frequently the harsh screams of a small party of Long-crested Jays (*Cyanocitta stelleri macrolopha*) that were lurking warily among the pines. If I had come very quietly I sometimes found them feeding on the ground, but, ever on the alert, at the slightest alarm they would take to the shelter of the thick upper branches of the pines, where at their leisure they could silently dodge from one tree to another and disappear over the hills, easily distancing pursuit, for, in the thin atmosphere of that altitude, chasing birds up hills which offer a footing of loose stones, is no easy matter. If, however, they have not been frightened, they will stay about in the pines, giving one glimpses of their brilliant plumage as they try to satisfy their curiosity about the invader of their domain, while they fill him with amazement at the noisiness and variety of their harsh and penetrating notes. They are more often to be found on the top of the ridges than at the bottom of the ravines, and seem to prefer places where the scattered pines grow most thickly, and also trees that are not very high and whose branches are dense. Occasionally they take to the piñons at the head of a ravine, and I have even found them in a clump of scrub oaks high up on the hills.

Like others of their family, when the flock is moving from place to place they never fly all at once, but go quietly one at a time at short intervals, as if they did not like to attract too much attention to their movements. In crossing a ravine, or in any prolonged flight, they are apt to set their wings, and sail like a Canada Jay.

Their commonest cry is a *whee-eésh*, long drawn out, rather wheezy, and with a penetrating character suggestive of the Catbird's cry. Another note, not heard as often, is one repeated several times, that sounds like a weak, harsh imitation of the *wake-up* of *Colaptes auratus*.

They have one noticeable habit, especially when wounded, to alighting on a lower branch of a pine close to the trunk, and then hopping up from branch to branch, with short pauses, until

lost to sight in the top of the tree. Like all Jays they are of by no means confiding nature, and though not extremely shy, are very wary. When they see you coming they will peer at you suspiciously through the branches, and then very likely conceal themselves, or prudently take flight.

Walking on across the hills, I did not often go far without coming upon a troop of Nuthatches roving about among the pines. There would be from half a dozen to a dozen or more Pygmy Nuthatches (*Sitta pygmæa*) in the party, and usually one or two of their Slender-billed cousins (*Sitta carolinensis aculeata*), frequently several Mountain Chickadees (*Parus montanus*), and occasionally a Creeper or two (*Certhia familiaris*). Two or three times I found a Gairdner's Woodpecker (*Picus pubescens gairdneri*) that had joined the company. The Pygmy Nuthatches, though the smallest, not only excelled in numbers, but were by far the most self-asserting and noisy. They were very active, moving about rapidly among the branches of the pines in their search for food. Their motions had much more of the Chickadee character and less of the Creeper than I have seen in the other American Nuthatches. They frequented chiefly the smaller branches, flying from branch to branch, perching like any other bird, swinging and bending about to reach their food like a Chickadee, and not often running along the trunks and branches *à la Certhia*. Occasionally one would stop and hammer on a branch like a Woodpecker, making a noise that seemed out of proportion to so small a bird. Indeed it could be heard at quite a little distance, and might almost be mistaken for the tapping of one of the smaller Woodpeckers.

They uttered their notes almost unceasingly, and the whereabouts of a flock could be easily discovered some distance off. None of their notes have the harsh *hank*-like character of the other Nuthatches. The one most constantly to be heard was a *chip* that had a very Sparrow-like sound This was usually uttered several times in quick succession. Once one indulged in an attempt at song. The individual notes were much like the ordinary *chip*, but the general effect was a not unpleasing warble. He uttered mere snatches of his song, however, as if he were aware that it was out of season, and as if some passing thought of spring time had merely recalled it to his mind.

They are excitable little birds, and showed much concern when I had shot one of their company, scolding me vigorously

for my evil doing. Possibly sympathy for their companion was not the only cause of their excitement, for an unsuccessful shot aroused a great deal of noise among them for a few moments.

In their habits and notes the Slender-billed Nuthatches seemed to differ in no way from *S. carolinensis*, except that their cry was more plaintive and querulous, and lacked the resonant twang of the eastern bird.

The Mountain Chickadees behaved much like *P. atricapillus*, but their motions were quicker, and they seemed more restless, seldom staying long in one spot; and, perhaps for this reason, they did not appear to be as tame. Their notes are quite similar, but by no means identical. They have a *phé-be* much like that of the Blackcap, but feebler, harsher, and without its melodious qualities. They utter a *deé-deé* that is weaker and less resonant than the corresponding notes of *P. atricapillus*, and a *chick-a-cheé-chee* much like the other's *chick-a-deé-deé*, but like their other notes differing by being rather feebler and harsher.

The Gairdner's Woodpeckers were not abundant. Besides those met with in company with the Nuthatches and Chickadees on the hills, I saw only two others. These were among the low willows bordering the river below the mouth of the cañon. However, they were commoner than Harris's Woodpecker (*Picus villosus harrisi*), of which I saw not more than two or three altogether. They were on the highest parts of the hills, and were solitary birds. The only other Woodpecker met with was *Colaptes mexicanus*, which, though more numerous than Harris's, was far from abundant. I saw perhaps half a dozen during my three week's stay, all of them on the hills.

The diet of most of these birds included but a small proportion of insects. An examination of the stomach of every individual shot showed that both species of Nuthatches fed chiefly on vegetable substances, probably the seeds of the pines. They ate sparingly of insects, but the frequent presence of gravel in their stomachs showed that their habitual food was vegetable. In *Parus montanus* every stomach examined contained seeds or other vegetable substances, and in nearly every case some gravel. In two out of five there were some insects in addition to the other food. Even the Creepers ate more largely of seeds than of insects, and a Harris's Woodpecker had filled his stomach with fragments apparently either of piñon seeds or acorns, with the addition of but a few insects. Whether this diet was due to

preference or to a scarcity of suitable insects is a question for the entomologists.

On the top of one of the smaller hills one day (December 20) I came upon a small flock of Crossbills. They were scattered about among the upper branches of the pines, where they were busily feeding among a flock of Nuthatches and Chickadees. I secured one bright male, but the others took fright and were off, and I did not see them again. This one proves on comparison to be *Loxia curvirostris bendirei*, and doubtless his companions were of the same race.

I was following up one day the side of one of the ravines that run from the main cañon back among the hills, when, as I came to a point where the increasing steepness of its sides showed that I had nearly reached its head, I had my first sight of that strange and interesting bird, Townsend's Solitaire (*Myiadestes townsendi*). He was sitting motionless on one of the lower branches of a pine close to the trunk, and was singing. As he sat there he had somewhat the air of a Hermit Thrush. I could not long resist the desire for a closer acquaintance, and when I shot him he flew, wounded, and sailed with outstretched wings for some distance along the hillside. On the wing he bore such a striking resemblance to a Mockingbird, that my companion was completely deceived, and exclaimed in surprise, "You've shot a Mockingbird."

Their song I heard several times. It is not loud and striking, but is clear, sweetly modulated, and full of expression, and is long sustained. In its character it reminded me of the Bluebird's (*Sialia sialis*) warble, while occasional notes were suggestive of the Thrushes' songs. It sounds as if it came from a distance even when the singer is quite near. Almost all that I saw or heard were high up on the steep sides of the ravines where they were narrow and deep. The steep slopes were covered with loose stones and gravel, with occasional ledges of rock, and bore scattered pines and patches of scrub oak, and near the top, piñons and occasional cedars.

Higher up on the top of the hills are the favorite haunts of the Spurred Towhees (*Pipilo maculatus megalonyx*), a species which occurs in but small numbers. Those I found were in large clumps of almost impenetrable scrub oaks, where they kept on or near the ground and were consequently not easy to obtain.

(*To be continued.*)

SEXUAL SELECTION AND THE NESTING OF BIRDS.

BY J. A. ALLEN.

MR. HENRY DIXON, in a paper 'On the Protective Colour of Eggs,'* follows Mr. A. R. Wallace in dividing "birds into two great classes—one in which the sexes are alike and of conspicuous or showy colours, and which nidificate in a covered site; and the other in which there is a marked difference between the colour of the sexes, the male being showy and the female sombre, and which nidificate in an open site"; and he subdivides them "into several minor groups, which will include all the 'exceptions' to either great rule." Having once written on this subject† I return to it reluctantly, and only because there seems to be something still to say on the other side.

Mr. Dixon's first group consists of "Birds in which the plumage of the male is bright and conspicuous in colour, and that of the female dull and sombre, and which nidificate in open sites." Under this heading, in referring to the fact that "the plumage of the female bird is in a great many cases far more sombre than that of the male," he says: "Until recently the cause of this phenomenon was never dreamed of. It is an ascertained fact that the colour of many female birds is connected in no small degree with their *mode of nidification*, and that the sitting bird is protected by the harmony which exists between its own sober plumage and the colour of the surroundings of its nesting-site. Let us glance over the nesting-habits of some of our best-known birds, and learn the working of this law." As examples of this great group he cites certain Pheasants and Grouse, various Ducks, the Blackbird (*Merula merula*) and Ring-Ouzel (*M. torquata*), several Finches and the Stonechat (*Pratincola rubicola*), in which 'the diversity of plumage between the sexes' shields the female during the season of nidification. In most of the instances cited this is eminently true, but there are glaring exceptions. Indeed, it will readily occur to ornithologists that several

* In Seebohm's 'History of British Birds,' Vol. II, Introduction, pp. x-xxxii.

† See paper entitled 'An Inadequate "Theory of Birds' Nests,"' in Bull. Nutt. Orn. Club, Vol. III, 1878, pp. 23-32.

species of birds of the groups here instanced—species too in which the sexual difference of plumage is at a maximum — resort to hollow trees for greater safety, as is the case with the Wood and Mandarin Ducks (genus *Aix*), the Buffle-heads (genus *Clangula*), and the Sheldrakes Merginæ). In other cases, as in our brilliantly colored Grosbeaks, where the female is dull-colored as compared with the male, the male shares in the work of incubation, and is even so indiscreet as to indulge in ecstatic outbursts of song while sitting on the eggs.

Mr. Dixon's second group consists of "Birds in which the plumage of both sexes is showy or brilliant in colour, and which nidificate in open nests." "This group," Mr. Dixon says, "forms one of those exceptions which, at first sight, appears seriously to affect the reliability of the whole theory"; but he believes "it can be shown that the birds included in it may possibly secure their safety in other ways." Unquestionably this is the case; at least they appear to get on quite as well as do the plain plumaged open nest builders. It certainly is true that, as our author states, many "brightly plumaged birds are safe enough in the localities where they build their nests." Mr. Dixon even suggests that "Some gaily attired female birds may have no special enemies against which to guard—their brilliant or showy dress is no disadvantage to them, as is the case with many conspicuous insects; and this fact may in itself explain why it is that they have assumed such tints." He even supposes that as some brilliant females may have become so through natural selection, they may have altered the form of their nest from an open to a covered structure; "and this would explain many of the apparent exceptions to the general rule that gaily dressed female birds sit in covered nests." Unfortunately this is not susceptible of proof, while the probabilities seem quite against the supposition. It is true, as he adds, that we should "also take into consideration what colours are showy in certain haunts," — that while they would be "very conspicuous in some places they may be especially protective in others."

The third and last group of open nest builders instanced consists of those few species "in which the male is less brilliant than the female," as the Phalaropes, Dotterel, Emu, etc.

Passing to the second great division, 'in which the nests are concealed,' the first group mentioned is composed of "Birds in

which both sexes are brightly coloured and which rear their young in holes or covered nests." As British representatives of this group are cited the Kingfisher, the Woodpeckers, the Tits, Gold-crests (Kinglets), and Nuthatches, the "showy Swallows and Martins," the "gaudy Rollers and brilliant Bee-eaters," the Hoopoe, Wall-Creeper, and Common Sheldrake, in which both sexes are equally conspicuous and nest in holes. Reference is also made to the American Orioles (Icteridæ) and several Australian birds.

The next group consists of "Birds in which both sexes are dull in colour, and which build covered nests from motives of safety other than concealment." Respecting this group Mr. Dixon says, "I do not think that the fact of dull-coloured females sitting in covered nests can be taken as a serious objection to the law of bright-coloured females sitting in covered nests"; and cites the many other obvious advantages mentioned by Darwin in his 'Descent of Man' (Vol. II, p. 168), as protection from enemies or the elements. These advantages are in many cases so evident that it seems unnecessary to call in the far-fetched explanation that plain-colored birds nest in this way because they 'may' have descended 'from some showy ancestor that built in a covered nest.' A number of instances are then cited showing the advantages other than concealment of a covered or domed nest, or of nesting in holes in trees or banks. Other instances of covered nests (presently to be cited) might have been added to show that such nests are often constructed to serve especially as protection from enemies.

The next group mentioned is that of "Birds in which the female is duller in colour than the male, and which nidificate in covered nests"; and which is cited as furnishing "convincing proofs of the theory of sexual selection"(!). Yet after mentioning various species and genera of birds in which 'the female is far less brilliant than the male,' it is suggestively admitted, "nevertheless she sits in a covered nest, although we cannot see any valid reason why she should require *concealment* during the period of incubation; in all cases her colours are dull and well adapted for safety in an open nest." Among the 'possible explanations' suggested is the very rational one that the domed nests "may be for the purpose of shielding the sitting bird and its charge from cold, or rain, or from some special

enemies." Again, it serves to conceal the eggs, where they are, as in many cases, conspicuous; and also allows the gaudily plumaged male bird to assist in incubation; yet this also happens when the nest is an open one. "If we grant," says Mr. Dixon, "that these domed nests are built for other purposes than concealment of the sitting female, it is easy to explain the great difference of colour between the sexes. The more brilliant colours of the males have been obtained by sexual selection"; and proceeds to cite cases where the domed nest is evidently not built for the purpose of concealing the female. This dictum, however, appears to be the only 'proof' educed from the consideration of this group, which furnishes such "convincing proofs of the truths of the theory of natural selection." The author then considers 'Birds' Nests' and 'Birds' Eggs, studied in relation to their colour.' The last subject is treated at some length in a thoroughly rational and admirable manner, but respecting 'Birds' Nests' we beg to offer one or two criticisms. But first let us return to the first part of the subject, the coloration of female birds in respect to the manner of nesting.

In my former paper on this subject I ventured to say, "The most surprising thing about Mr. Wallace's 'Theory of Bird's Nests' is its inadequacy, and its irrelevancy to the facts it was proposed to explain"; and further attention to the subject only serves to confirm my conviction that the above statement was not inconsiderately made. Mr. Wallace says that the 'first thing we are taught' by a consideration of the facts involved, is "that there is no incapacity in the female sex among birds to receive the same bright hues and strongly contrasted tints with which their partners are so often decorated, since whenever they are *protected and concealed* during the period of incubation *they are similarly adorned*."* In point of fact, however, this statement is far from correct, for it often happens that where the males are especially brilliantly colored and the females are exceptionally dull-colored, they either build domed nests or nest in places of concealment, as in the Superb Warblers (genus *Malurus*) of Australia, and the great family of Sunbirds (Nectariniidæ), etc.;† while on the

* The italics are Mr. Wallace's own.

† Numerous individual cases may be cited among many other families, where the rule is an open nest, and the exceptions of concealed or domed nests are presented by species in which the sexual contrast in the color of the birds is greater than among their near allies which build an open nest.

other hand nearly as many birds (probably *fully as many*, proportionately to their whole number) in which both sexes are among the dullest plumaged of all birds, build a domed nest or nest in holes. Take, for example, the great family of Wrens (Troglodytidæ), and especially the great South American family Dendrocolaptidæ, particularly its subfamilies Furnariinæ and Synallaxinæ, in which the species as a rule build a domed nest, either of mud or sticks. Some of these nests, as those of the genus *Synallaxis* and its allies, are among the most remarkable examples of bird architecture, being immense structures (compared with the size of the builders) of sticks, which they enter by narrow, winding passageways, or through long tubes of interlocked thorny twigs, the whole structure being obviously contrived for the purpose of keeping out enemies. Even birds of the genera allied to *Malurus*, already mentioned, consisting of species in which both sexes have plain and 'protective' colors, also build domed nests. Even among the Swallows and Martins it is the species having the plainest colors which build in holes in banks, or in the otherwise most concealed and protected situations. Again, the Creepers (genus *Certhia*) are sexually alike in color, and of eminently plain and protective tints, yet they nest in holes. The Nuthatches and Tits, at least many of them, are no more conspicuous in respect to coloration than perhaps the average of birds which build open nests. In the great family of American Warblers (Mniotiltidæ), one of its plainest members, the Ovenbird (*Siurus auricapillus*), and one of the few species of the family in which the sexes are alike, builds a domed nest, contrary to the rule prevailing in the family. In short, scarcely a family or subfamily among Passerine birds can be named in which we do not meet with cases of just this character, some of them presenting many such. Consequently *it is not the rule* that birds which breed in domed nests or in places of concealment are brightly or gayly colored, and that "whenever they [the females] are *protected and concealed* during the period of incubation *they are similarly adorned*" (i.e., with "the same bright hues and strongly contrasted tints of their partners").

In view of the real facts in the case, it seems not rash to assume that concealment of the female during the period of incubation has nothing, or at least very little, to do with this method of nidification, since it not only does not bear out the theory erected

upon a misapprehension of the facts in the case, but is susceptible of a far more rational explanation. As already noted, Mr. Dixon frankly admits that in the case of dull-colored birds which build covered nests or which nest in holes, "other advantages may be gained irrespective of concealment," and concealment in such cases is considered as unnecessary. These advantages may be in some cases shelter from rain, protection from the sun, or sudden changes of temperature, or greater security from enemies, or concealment of the eggs, which are generally, under such circumstances of nidification, *white*, or at least conspicuous in coloration. Here, it seems to me, comes in the only function of concealment—namely, that of the *eggs* rather than the sitting female.

In my former paper on this subject I referred to this latter point in the following words: "In conclusion, I desire to call attention to an interesting coincidence between the manner of nesting among birds and the color of the eggs, and one so striking that it is almost surprising that some ingenious theorist has not seized upon it as a basis for a 'theory of birds' nests,' either independently or as a modification of that proposed by Mr. Wallace. It curiously happens that nearly all the birds that nest in holes, either in the ground or in trees, lay *white eggs*, embracing, for instance, all the Woodpeckers, Kingfishers, Bee-eaters, Rollers, Hornbills, Barbets, Puff-Birds, Trogons, Toucans, Parrots, Paroquets, and Swifts, while only occasionally are the eggs white in species which build an open nest. In only two or three groups of land birds, co-ordinate with those just named, that build an open nest, are the eggs white, namely, the Owls, Humming-Birds, and Pigeons. On the other hand, in only two or three small groups of species that nidificate in holes are the eggs speckled or in any way colored. There is, in fact, a closer relationship, or rather a more uniform correlation, between the color of the eggs and the manner of nesting than between the color of the female parent and the concealment or exposure of the nest. There are, however, here apparently too many exceptions to bring this coincidence into the relation of cause and effect."* Further examination of the matter, however, shows that the coincidence of white eggs and a covered or concealed nest is much more general than the above quotation indicates, the ex-

* Bull. Nutt. Orn. Club, III, p. 32.

ceptions to the rule being very rare; for to the above groups must be added the hundreds of species of Passerine birds which build a domed nest, as the Malurine birds, the Weaver Birds, the Munias, the Willow-warblers, the Sunbirds, the Pittas, the Tailor Birds, the great Synallaxinine series, and *many* others. In all these cases the eggs as a rule are pure white, and when deviating from this are simply pale bluish white, or white with a few minute specks, or lustrous white speckled with reddish, in in such a way as in nowise to render the eggs less conspicuous than if pure white. Mr. Dixon, in his paper now under notice, has called attention to the same facts, and commenting on this coincidence says, "This law is almost universal."*

If we pass to water birds, we find many of the Petrels nesting in holes and laying white eggs; and that the Ducks and Grebes lay white or nearly white eggs, and, though building an open nest, cover them on leaving them; and, it may be added, the same is true of many Pheasants and Partridges.

There are, on the other hand, birds which lay white eggs in an open nest, but the number is few in comparison with those which lay white eggs in nests affording concealment, or colored eggs in open nests. Again, some eggs laid in open nests are intensely white in ground-color, with markings which tend to make them more conspicuous rather than contribute to concealment. Such are the eggs of most of the great group of Tyrant Flycatchers of America. Of species laying white eggs in open nests, the Pigeons and the Hummingbirds are prominent examples, embracing as they do a multitude of species. To this list may be added a few ground-nesting Hawks and Owls which lay white, or at least whitish, eggs, and the Herons, Storks, Pelicans, and Cormorants. In respect to these exceptions, it may be said that the Tyrant Flycatchers are especially watchful of their nests and courageous in their defense, and succeed in driving away even predacious birds greatly exceeding them in size. The Pigeons and some Goatsuckers, as Mr. Dixon suggests, build a very

* He adds, however, as a part of the same sentence, "and, curiously enough, white eggs are correlated to a great extent with the brilliant plumage of the bird; for we have already seen how so many of these showy birds breed in covered nests." This latter fact, however, loses much of its significance when we remember that nearly as many other birds of equally brilliant plumage lay *colored* eggs in *open* nests, and also that nearly as many dull-colored birds as bright-colored ones lay *white* eggs in nests which afford them concealment.

slight and inconspicuous nest, and, as a rule in dense cover. He also adds, very pertinently, respecting the Herons, Cormorants, Pelicans, and Storks, that in these cases it is quite evident "that the birds by there own prowess alone shield their eggs from danger; besides, most of these birds are gregarious, and are well able to beat off any enemy that is likely to approach, if not singly, by uniting for the purpose, so that it is of no special advantage for them to conceal their eggs."

In respect to spotted eggs, laid in covered nests, in which the color is as much 'protective' in character as in the case of their allies which lay in open nests, they usually belong, it may be stated, to groups which as a rule breed in open nests, as the Magpie, for example, among the Corvidæ.

As a rule, spotted eggs are laid in open nests, and are in most cases 'protective' in coloration, as is the case generally with ground-nesting birds, in which the tints of the eggs often strikingly harmonize with their surroundings. In the case of tree-nesting species, the color of the eggs is less 'protective'; but the position of the nest is in a measure an element of safety, at least in respect to non-scansorial ememies, like many of the smaller mammals, which prey more or less upon the eggs or nestlings of ground-nesting birds.

It is therefore evident that the color of the eggs has an intimate relation to the manner of nesting, white eggs as a rule being laid in covered nests or concealed nesting-sites. But a distinction should be made in respect to different kinds of covered nests, in reference to the matter of security against enemies. The bulky nests of the Synallaxinæ, composed of coarse, interlocked, often thorny sticks and twigs, or the globular mud nests, the walls of which become of a brick-like hardness, of the species of *Furnarius*, may well be classed, on the ground of protection against enemies, with nests built in excavations in trees or in the earth, while the loosely constructed domed nest can scarcely serve otherwise than for concealment of the eggs, or young, or the sitting bird. The large size of such nests, however, must sometimes render them a too conspicuous object to give any real advantage, but in other cases, and generally when placed on the ground, the nest itself is artfully concealed. In regard to nesting in holes, in trees or the earth, the object gained is obviously protection in the broader sense rather than concealment of the female

during incubation, *on account of her bright colors*. It seems therefore needless and wholly gratuitous to resort to any theory of sexual selection to account for the diverse methods of nest-building among birds. Really, however, it is not the sitting bird, in the case of open nests built in trees, whether she be bright or dull-colored, or the contents of the nests, whether eggs or nestlings, that lead to its discovery so much as the size and conspicuousness of the nest itself. Neither is the sitting bird herself so much in danger as her charge, be it either eggs or nestlings. The chief enemies of tree-nesting birds are squirrels, monkeys, other aboreal mammals, and nest-robbing birds, to all of which the nestling birds, particularly if very young, are as welcome as the eggs, and in general they are much less conspicuous objects than are either the eggs or the sitting female.

Now a word on another point. Mr. Wallace, and after him Mr. Dixon and others, in discusing the question How do young birds learn to build their first nest? claim that 'instinct' has nothing to do with the matter,—that they learn by observation and are guided by memory! Says Mr. Wallace: "It has, however, been objected that observation, imitation, or memory, can have nothing to do with a bird's architectural powers, because the young birds which in England are born in May or June, will proceed in the following April or May to build a nests as perfect and as beautiful as that in which it was hatched, although it could never have seen one built. But surely the young birds *before* they left the nest had ample opportunities of observing its *form*, its *size*, its *position*, the *materials* of which it was constructed, and the manner in which those materials were arranged. Memory would retain these observations till the following spring, when the materials would come in their way during their daily search for food, and it seems highly probable that the older birds would begin building first, and that those born the preceding summer would follow their example, learning from them how the foundations of the nest were laid and the materials put together. Again we have no right to assume that young birds generally pair together," etc. Mr. Dixon restates the case in much the same way. Alluding to 'blind instinct' as a factor in the case, he says: "To credit the bird with such instinct, which because it seems so self-evident is taken to be matter of fact, is to admit that it

posesses intellectual powers infinitely superior to those of man; whilst the evidence that can be gathered on the subject all goes to show that its intellectual powers are of precisely the same kind as man's, but some of them, of course, are infinitely inferior in degree, whilst others are unquestionably superior." He assumes that *imitation*, *memory*, and hereditary habit, 'play the minor parts.' "To credit birds," he says, "with such marvellous power as blind and infallible instinct in building their nests would be to place them far beyond man himself in intelligence, and allot to them a faculty which is superhuman.... A bird's intellectual powers advance towards maturity much more quickly than in the human species. A young bird three or four days old is capable of considerable powers of memory and observation, and during the time that elapses in which it is in the nest it has ample opportunity of gaining an insight into the architecture peculiar to its species. It sees the position of the nest, it notes the materials, and when it requires one for itself, is it so very extraordinary that, profiting by such experience, it builds one on the same plan? Again, birds often return to the place of their birth the following season, and possibly see the old home many times ere they want one for themselves. This, aided by the strong hereditary impulse to build a nest similar to the one in which they were born, inherited from their parents, aids them in their task." This reasoning, I am free to confess, strikes me, to say the least, as extraordinary! A degree of mental power, at least of memory and of imitation, is ascribed to young birds which is not only 'superhuman,' but of which there is neither proof, nor even possibility of proof. Mr. Dixon has the 'three or four days old' nestling taking note of and memorizing its surroundings before, in the case of the higher Oscines, *it has the power to even open its eyes!* Yet with all this ascribed precosity and keenness of observation, and this wonderful power of memory and imitation in young birds, Mr. Dixon finds it neccessary to call in the aid of "a strong hereditary impulse to build a nest similiar to the one in which they were born," which is more than a half-way admission of all that is implied in the modern interpretation of instinct, or the 'blind instinct' of the non-scientific writer. It we interprete instinct as 'inherited habit,' what better explanation do we need of the ability of young birds to build a nest like that of their parents or of their species? In view of the slight evidence available as to how much a nestling bird can

take cognizance of its surroundings, and make mental note of them for purposes of imitation at a remote future, does not the assumption of such extraordinary powers of imitation and memory border upon absurdity? To extend the theory, which it is perfectly legitimate to do, to other classes of animals, does the tadpole, or the embryo fish (in the case of the nest-building species) also remember the exact position, structure and materials of its maternal nest? Does the young turtle remember throughout the long years of its adolescence the precise nature of the spot from which it emerged, so as to select a similar place for its own eggs? Or does the larva of an insect remember, through its various stages of metamorphosis, the exact arrangement of the egg from which it was hatched in relation to the eggs of its brother larvæ so distinctly as to be able to deposit its own eggs in a similar situation and similar order of arrangement? Why, indeed, the idea that birds are guided by 'instinct,' taking the term as interpreted by modern science, is so repugnant to a certain class of minds, or why they will persist in denying that *any evidence in its favor exists*, is to me at least incomprehensible. In short, I agree exactly with Mr. Seebohm in his footnote appended to Mr. Dixon's essay, in which he says: "I regard the word Instinct as the popular term for the mysterious impulses which scientific men call Hereditary Habit; and I think that it plays a great part, an overwhelmingly great part, not only in Bird-nest building, but in every other action of every animal, man included . . . . If Hereditary Habit have the lion's share in the production of a birds' nest, we must allow that Memory, Imitation, and a rudimentary form of Reason also play their subordinate parts." In these few words, it seems to me, we have the sum of the whole matter, and a rational answer to the question of how young birds build their first nest.

NOTES ON SOME OF THE BIRDS OF PUEBLO, COLORADO.

BY CHARLES WICKLIFFE BECKHAM.

THE following observations were made principally in the immediate neighborhood of Pueblo, Colorado, during the season of 1883.

Pueblo is one hundred and twenty miles south of Denver, at the junction of the Fontaine qui Bouille and the Arkansas River, forty miles west of the point where the latter emerges from the mountains. The surrounding country is a dreary waste of cactus, sage-brush, and soap-weed, but along the river and the creek, the vegetation is comparatively luxuriant. Naturally nine-tenths of the birds are to be found in these more favored localities. Owing to other engagements but little time could be given to collecting, and the list is therefore necessarily incomplete.

The writer is indebted to Mr. Ridgway for material assistance in preparing these brief notes.

1. **Hylocichla ustulata swainsoni** (*Cab.*). First observed on May 13 and by the 20th they had become very common.

2. **Merula migratoria propinqua** *Ridgw.* Abundant.

3. **Oreoscoptes montanus** (*Towns.*). Not common. Preferring, with obviously bad taste, the cactus and sage-brush of the plains to the luxuriant vegetation along the water-courses. Its song is very soft and low, as if it were disinclined to 'waste its sweetness on the desert air.'

4. **Mimus polyglottus** (*L.*). Rather common on the outskirts of the town. The same versatile mimic here as everywhere else.

5. **Galeoscoptes carolinensis** (*L.*). Not common and rather shy.

6. **Harporhynchus rufus** (*L.*). An abundant bird along the streams.

7. **Cinclus mexicanus** *Sw.* One seen in a cañon in the Greenhorn (Sierra Mojada) Mountains, thirty miles southwest of Pueblo.

8. **Sialia sialis** (*L.*). A female, the only one recognized, was shot on April 25.

9. **Sialia mexicana** *Sw.* Rather common up to the first of May. Frequently seen out on the prairie, as well as along the streams.

10. **Sialia arctica**, *Sw.* More abundant than the preceding. Breeding.

11. **Myiadestes townsendi** (*Aud.*). First observed April 22, and they afterwards became rather common up to June 1. Much on the ground, and generally somewhat shy. Heard no note at all from them at this time, but during the last week in September they were very abundant at Manitou, forty-five miles northwest of Pueblo, in Williams Cañon and the Garden of the Gods, where their delightfully sweet songs were often the only sounds to be heard in those rocky solitudes.

12. **Parus montanus** *Gamb.* A small party of four or five were observed April 6 in Greenhorn Cañon, thirty miles southwest of Pueblo.

13. **Thryomanes bewicki leucogaster** *Bd.* The only one seen, a male, was shot out of an old stunted cottonwood, containing several abandoned Magpie nests, about which the bird dodged for fully fifteen minutes before giving me a chance to shoot. This record, I believe, considerably extends the known range of the form.

14. **Troglodytes aëdon** *V.* Common on the outskirts of town, but none were seen in the town itself.

15. **Dendrœca æstiva** (*Gm.*). First observed May 4, after which it became one of the commonest species.

16. **Dendrœca auduboni** (*Towns.*). First observed May 4. Rather common for several weeks; much on the ground in company with the Grass Finch.

17. **Geothlypis macgillivrayi** (*Aud.*). Rather common during the third week in May.

18. **Geothlypis trichas occidentalis** *Brewst.* Not uncommon. First seen May 6.

19. **Icteria virens longicauda** (*Lawr.*). Common in the thickets along the river. Much less shy than the eastern form.

20. **Setophaga ruticilla** (*L.*). A female, shot May 27, was the only one seen.

21. **Vireosylvia gilva** (*V.*). Not common.

22. **Lanivireo solitarius plumbeus** (*Cs.*). Three or four were taken during the month of May.

23. **Hirundo erythrogastra** *Bodd.* Common along the river and the Fountain.

24. **Tachycineta thalassina** (*Sw.*). Observed but once, June 10, when a dozen or more were seen.

25. **Stelgidopteryx serripennis** (*Aud.*). Common along the streams.

26. **Pyranga ludoviciana** (*Wils.*). No females were recognized, but the males were rather common from May 15 to June 1. A mile or so up the Fountain was a place where the offal from a neighboring slaughter-house was dumped, and the Tanagers, in company with Bullock's Oriole and the Arkansas Flycatcher, could always be found there in considerable force, feeding on the swarms of insects attracted by the odoriferous deposit.

27. **Carpodacus frontalis** (*Say*). Abundant everywhere.

28. **Astragalinus tristis** (*L.*). Common, in same flocks with the Pine Finch.

29. **Astragalinus psaltria** (*Say*). Common.

30. **Chrysomitris pinus** (*Wils.*). Common.

31. **Pœcetes gramineus confinis** *Bd.* Very abundant.

32. **Chondestes grammica strigata** (*Say*). Probably the most abundant species to be found here.

33. **Zonotrichia leucophrys** (*Forst.*). Not uncommon in May.

34. **Zonotrichia gambeli intermedia** *Ridgw.* Very abundant. A lazy, sleepy sort of a bird, using a good deal in the trees.

35. **Spizella domestica arizonæ** (*Cs.*). Not uncommon.

36. **Spizella pallida** (*Sw.*). Very abundant. Almost exclusively terrestrial. Note a wheezy rattle, hardly rising to the dignity of a song.

37. **Junco oregonus** (*Towns.*). Apparently not very common. Only observed in March and early in April.

38. **Junco caniceps** (*Woodh.*). Rather common in April. A female shot on June 1.

39. **Melospiza fasciata fallax** *Bd.* Apparently not very common.

40. **Melospiza lincolni** (*Aud.*). Common in undergrowth in company with other Sparrows.

41. **Pipilo maculatus arcticus** (*Sw.*). Rather common in the foothills thirty miles southwest, but only a few observed in the immediate vicinity of Pueblo.

42. **Pipilo chlorurus** (*Towns.*). Abundant.

43. **Zamelodia melanocephala** (*Sw.*). First seen May 4, after which the males became very abundant; no females at all were recognized. A nest containing four eggs was taken on June 1, and the male shot just after leaving it. Their song, almost always delivered from the topmost branch of a tree, is very full and sonorous, and very similar to that of the Robin.

44. **Guiraca cærulea** (*L.*). A female, shot on June 10, and a male seen were the only two observed.

45. **Passerina amœna** (*Say*). Common, but none were seen until May 15.

46. **Molothrus ater** (*Bodd.*). A male, seen on May 27, was the only one recognized.

47. **Xanthocephalus icterocephalus** (*Bp.*). A large flock was several times seen a mile and a half up the river.

48. **Agelæus phœniceus** (*L.*). Abundant. A colony of them breeding within the 'city limits.' A very comprehensive term as applied to western 'cities.'

49. **Sturnella neglecta** *Aud.* Abundant. When I first heard the note I had no idea from what sort of a bird it proceeded.

50. **Icterus bullocki** (*Sw.*). Very abundant. Before the leaves appeared, their compactly woven nests (old ones, of course) were very conspicuous objects on the cottonwoods, bordering the Fountain.

51. **Scolecophagus cyanocephalus** (*Wagl.*). Common. Found breeding.

52. **Pica rustica hudsonica** (*Scop.*). Very abundant. The Magpie has a very bad name out here, but like the Devil, is not, perhaps, 'as black as he is painted.' Hundreds of them breed in the cottonwood a mile or two down the river, and their immense globular nests, made exclusively of sticks, are everywhere to be seen. They begin laying, I think, about April 15, and a month later the young are able to fly. Seven or eight eggs appear to be the usual number to a clutch.

53. **Cyanocitta stelleri macrolopha** (*Bd.*). A party of seven or eight were seen on Sept. 24 in the immediate vicinity of town. They were perfectly silent and acted generally as if they had been doing something that they ought not to have done, and were anxious to get back to the foothills. In the Greenhorn Mountains, and at Manitou, I found them very abundant. The ranchemen in the former locality accuse them of robbing hen's nests, and foraging on the garners where grain is stored.

54. **Eremophila alpestris leucolaema** *Cs.* Very common. The specimens taken are provisionally referred to this form, although, according to Mr. Henshaw, there are two distinct races whose range includes Pueblo.

55. **Tyrannus carolinensis** (*L.*). Common.

56. **Tyrannus verticalis** *Say*. Very abundant from May 6 to September 24.

57. **Contopus richardsoni** (*Sw.*). Common in open places.

58. **Empidonax hammondi** (*Xantus*). Common.

59. **Phalænoptilus nuttalli** (*Aud.*). But one seen, May 24.

60. **Chordeiles popetue henryi** (*Cass.*). Common during the first ten days of June.

61. **Picus pubescens gairdneri** (*Aud.*). Not common, apparently, as but two were seen. One of them, a female, shot May 26, had but one leg; the loss of the other was doubtless due to some accident.

62. **Melanerpes erythrocephalus** (*L.*). First observed on May 15. A week later they were common both in the town as well as in the country, in fact, everywhere except on the prairie.

63. **Melanerpes torquatus** (*Wils.*). A male, shot May 13, was the only one seen. Very wary; followed him at least half a mile before I could get a shot.

64. **Colaptes auratus mexicanus** (*Sw.*). Abundant.

65. **Geococcyx californianus** (*Less.*). Alderman Morse of Pueblo informs me that he has found the Chaparrel Cock twenty miles down the river.

66. **Asio accipitrinus** (*Pall.*). A male, the only one observed, was shot near the river on April 1.

67. **Bubo virginianus subarcticus** (*Hoy*). Saw several in captivity, captured near Pueblo.

68. **Speotyto cunicularia hypogæa** (*Bp.*). Common in the prairie dog colonies near town. I have wasted a great deal of energy, patience, and time, vainly trying to get a shot at this very knowing bird. They always managed to keep a minimum distance of six feet or so between themselves and the ultimate range of my gun.

69. **Tinnunculus sparverius** (*L.*). Abundant. Not at all wary.

70. **Haliaëtus leucocephalus** (*L.*). Several were seen at Manitou in September. None noted at Pueblo.

71. **Cathartes aura** (*L.*). Observed two or three times near Pueblo.

72. **Zenaidura carolinensis** (*L.*). Excessively common.

73. **Ardea herodias** *L.* A mounted specimen in Corder's drug store, Pueblo, is said to have been shot near the town.

74. **Oxyechus vociferus** (*L.*). The Killdeers were quite common along the river and the Fountain, where they were breeding.

75. **Podasocys montanus** (*Towns.*). Not uncommon out on the dry and sandy 'prairie.'

76. **Ereunetes pusillus** (*L.*). But once observed, May 17, when a male was shot out of a small flock on the river.

77. **Totanus flavipes** (*Gm.*). But one specimen, shot May 8.

78. **Tringoides macularius** (*L.*). I have never found the ubiquitous 'Peet-weet' anywhere as abundant and noisy as here.

79. **Numenius hudsonicus** *Lath.* Mounted specimens of this and the next, in Corder's drug-store, are said to have been taken near Pueblo.

80 **Recurvirostra americana** *Gm.*

81. **Rallus virginianus** *L.* But once observed—May 20—in a marsh near town.

82. **Grus canadensis** (*L.*). One recently shot was seen in market in South Pueblo.

83. **Anas boschas** *L.* Abundant in April and September on the river.

84. **Chaulelasmus streperus** (*L.*). One was shot out of a flock of five on May 15.

85. **Querquedula discors** (*L.*). Common in May and September on the river.

86. **Querquedula cyanoptera** (*V.*). Not uncommon in May on the river.

87. **Nettion carolinensis** (*Gm.*). Common on the river in April and September.

88. **Erismatura rubida** (*Wils.*). A male, the only one seen, was shot on a pond May 11.

89. **Lophodytes cucullatus** (*L.*). Alderman Morse of Pueblo informs me that he shot one on the river here several years ago.

90. **Mergus merganser americanus** (*Cass.*). Common in April on the river.

91. **Pelecanus erythrorhynchus** *Gm.* Mr. Bagley of Rye, Pueblo Co., Col., has a bill of one in his possession which he shot on a large artificial lake near Pueblo in 1880.

A STUDY OF THE SINGING OF OUR BIRDS.

BY EUGENE P. BICKNELL.

(*Continued from Vol. I, p. 332.*)

Spizella monticola. TREE SPARROW.

THIS hardy Sparrow, though provided through our winters with an unfailing supply of seeds from the catkins of swamp alders and the dried flower-clusters of golden-rods and other withered weeds which reach above the snow,* seems nevertheless

* The number of wild plants and trees that keep their seed through the winter is greater than the casual observer would be likely to believe. During a recent winter I gave some attention to this subject, noting down all the trees and plants found with seed. No systematic or extended search was made, yet a few midwinter walks gave me a list of about one hundred and fifty names. Some of these were of scarce plants, or those the fruit of which was hardly adapted for a bird's food, but many were of common and widely-spread species, which were well suited to form winter staples for our granivorous birds.

early to become impatient for spring. It is always ready with song for the first mild, sunshiny days after the middle of February, and I have often heard its initial notes on or about the 22d of the month. Sometimes, however, it does not begin to sing until March, and in 1877, when this month was decidedly inclement, the first day of song was March 21. My latest record for song is April 13, but in some seasons it is not heard later than the end of March.

In the fall, singing is unusual, but I have several times heard songs in November, once so late as the 17th.

Isolated dates for singing are January 11, and December 12, 1880; on the latter occasion the song was feeble and imperfect, but on the former it was complete, and several times repeated.

Besides its customary *chip*, the Tree Sparrow has a low double note, which is uttered mainly while the birds are feeding. This simple and slightly musical sound from many birds busily feeding together produces a low conversational chirping, so pleasantly modulated as to seem like an unconscious expression of contented companionship.

Spizella domestica. CHIPPING SPARROW.

The familiar song of this domestic species we hear in almost every kind of weather, from the bird's arrival in early April on into the summer, usually with no evident falling off until towards the end of July. Then singing becomes less general with the species, and it may cease in the first week of August, though more often, perhaps, prolonged into the second week. My dates for final songs are from the 5th to the 15th, with a single record of the 18th.

Almost two months may now elapse before the song of the Chipping Sparrow is heard again; then singing is transiently resumed. This supplementary song-period occupies a few days only. I have never known it to last a full week in any one year, however abundant the birds might be. The greatest range in the dates of several years is from September 24 to October 10. The first songs of this latter period are sometimes imperfect.

Spizella pusilla. FIELD SPARROW.

This Sparrow also arrives in song, except, as with other birds, in the case of individuals of premature advent. Singing con-

tinues with some yearly regularity until the middle of August, at which time, or even a little before, it may cease; or the time of cessation may be delayed a week or ten days. Latest dates for singing are August 29 and 31. I have noticed no indication of singing in the autumn.

In several instances I have known the songs of early spring arrivals to be so aberrant as scarcely to be recognizable, and have noted similar but lesser variation in the songs of later comers. There is also considerable individual variation in the song, the normal song being sometimes prolonged into elaborate variations. Mr. J. A. Allen has written of this species, as observed in Florida (Bull. Mus. Comp. Zoöl., Vol. II, No. 3, p. 279), that "The songs of the males were so different from those of the northern bird that the species was almost unrecognizable by me from its notes." As illustrating further geographical variation in voice of this species, I may quote from a letter from Mr. Fred. T. Jencks of Providence, that "The Field Sparrow in Illinois usually twice repeats the song he gives in the East."

Junco hiemalis. SLATE-COLORED JUNCO.

Early March is most often the time when we first hear the song of this Sparrow; but, according to the character of the season, the beginning of singing may vary within two weeks in either direction from the average time. After the early days of April, singing is not commonly heard, and in some years it ceases before the end of March. April 17 is my latest record, although the species often remains into May. The Junco has two very different songs: a simple trill, somewhat similar to that of the Chipping Sparrow; and a faint whispering warble, usually much broken but not without sweetness, and sometimes continuing intermittently for many minutes. It seems to slip very readily from a simple chirping, and is always the song with which the species begins the season. Later, the first mentioned becomes the more general if not the only song, as I found it to be in the Catskill Mountains in summer, when the birds were breeding.

The Snowbird does not often sing in the autumn, but I have heard both of its songs in October and November; and it

seems always ready with a few feeble song-notes for any day that comes out sunshiny and mild in sudden change from harder weather.

Melospiza fasciata. SONG SPARROW.

This familiar Sparrow sings with greater constancy through the seasons, and with less regard to adverse weather, than any other of our song-birds. All through the hottest summer weather it is songful, though the oppressive days of late August seem sorely to try its spirit; but it recovers its cheerfulness with advancing autumn, and is one of the few birds which, in that season, repeats its full chorus of the spring. In every month of winter, too, I have heard its song. Not that it sings uninterruptedly throughout the year; for there is an intermission of singing between November and February. But the general rule of silence for these two months is not infrequently transgressed. Its song is one of the first which the waking season brings; though it is usually a little antedated by that of the Bluebird. Like the latter, the Song Sparrows are often in advance of the season, and early in the spring I have found them singing cheerily when the temperature was but little above zero (F.), and even when snow was falling thickly.

The earliest songs of which I have record date January 25 and 27. Ordinarily first songs are not until the middle of February, though it is not unusual to hear them after the first week of the month. In severe seasons they may be deferred until its latter days; but I have never known silence to be kept longer, however inclement the weather. But universal singing with this species does not always proceed directly from the first song; here the weather has much influence. Thus, in the year 1879, the first song was on February 7, but up to the end of the month singing was intermittent and timorous only, and the confident spring song was not voiced until March 5. But when singing has become general, only the most adverse weather can reduce the joyous birds to silence. When the first songs are not until late in February, the impulse to sing is likely to become pretty general in a single week. The earliest songs are sometimes nothing more than feeble warblings without definite beginning or ending, but with favorable weather they quickly pass into the full-voiced aria of spring.

Singing continues through the summer. In some years, chiefly in seasons of drought, it falters under the heats of late July; yet, even at these times, the steadfast little chanters never seem to be wholly discouraged. Through a great part of August they continue in voice; but later singing slackens, and towards the end of the month complete silence is averted only by occasional weak songs.

In August, a change comes over the songs of many of the birds. Their songs lapse into a low, desultory warbling, even more indeterminate than their first attempts in late winter, as if they had lost their early interest or lacked the power to sustain the full pitch of their notes. But it is probable that in the summer time a state of complete silence is never quite reached, though it is much more nearly approached in some years than in others. During these times of uncertain singing the low warble is the more usual song, and sometimes wholly replaces the louder one; but the latter may occur at any season. Sometimes, chiefly in the autumn, the undertoned song is remarkably prolonged, the notes being thrown together with much modulation, but without definite arrangement. In this manner singing may be continued without pause for more than a minute.

From the latter part of September to the middle of October the full song is resumed and, associated with the inferior song, is continued into November. On fine bright October and early November days, the song is sometimes as frequent and given with as much ardor as in the spring. After the first week of November singing is not longer to be depended upon, but fine weather may call it forth up to the end of the month.

Among the various notes of the Song Sparrow are two very different *chirps*, one being particularly characteristic of the species, and a peculiar low chippering. The latter seems to be uttered only in the mating season. In advanced seasons I have heard it at the end of February.

Earlier in this paper I alluded to the wide individual variation in the song of this Sparrow. While scarcely any two of the birds sing just alike, occasionally songs are heard which it is hard to believe are from this species until optical evidence forces conviction. I recall a particular instance of this kind which came under my observation at Sing Sing, N. Y., while in the company of Dr. A. K. Fisher. We were attracted by a song

which was perplexing to us both. It clearly suggested the song of the little Field Sparrow (*Spizella pusilla*), but the locality was not one which that bird would be likely to frequent. With much interest we approached the singer, half expecting to note the occurrence of a rare species. The author of our excitement was a Song Sparrow, evidently wholly unconscious that it was not singing after the manner of its fellows.

Melospiza palustris. SWAMP SPARROW.

Although a simple, unpretentious trill in April, from some wet meadow, bog, or reedy marsh, always first tells me of the presence of the Swamp Sparrow, it cannot be said that the bird arrives in song; for the nature of the places it inhabits, with its retiring disposition, might well keep the secret of its presence until it chooses to make itself known. It is probable, however, that, like most birds, it comes to us in song. Dates of first songs extend from April 4 to 24, but most often fall after the middle of the month.

Early April songs are exceptional, and not improbably are from birds which have remained over winter; as in several seasons after such early songs it has been a week or two before the species was heard again.

The song of the Swamp Sparrow comes up from the swamps and marshes until early August, then it becomes less frequent. Usually it ceases about the middle of the month, sometimes a little before, but not unfrequently it continues later, and I have heard songs even so late as early September. About a month of silence now ensues; then the species comes again into voice. My record gives dates for the recommencement of singing from September 11 (?) and 18, to 28. The time of final cessation is carried into October—15th and 17th are latest dates; but often the song is not heard after the first part of the month. In this supplementary season of song, singing is by no means general, and is usually confined to the early morning hours. But the birds seem more ambitious in their vocalism than earlier in the year. In the spring and summer the song is a simple monotone; in the autumn this is often varied, and extended with accessory notes. A few preliminary *chips*, merging into a fine trill, introduce the run of notes which con-

stitutes the usual song, which now terminates with a few slower somewhat liquid tones. This seems to be the fullest attainment of the bird, and is often only partially or imperfectly rendered.

Passerella iliaca. FOX-COLORED SPARROW.

This fine Sparrow, "the noblest Roman of them all," sings for us both in the spring and in the autumn. My records are comprised between the following dates: February 29 and April 13 in the spring; and October 28 and November 17 in the fall. At neither season are they in song when they first come, unless possibly in a spring when the arrival is late; if they come exceptionally early, singing may be considerably postponed.

In the fall they are sometimes in voice soon after making their appearance; but it is usual for them to be present some time before their mellow notes add their charm to the late autumn. Singing often lasts as late as the second week of November, but rarely later, even though small flocks of the birds remain till the end of the month.

Like many other birds this Sparrow seems indisposed to sing unless present in some numbers, and in seasons when it is uncommon, whether spring or fall, its song may not be heard.

Pipilo erythrophthalmus. CHEWINK.

The Towee Bunting, though it joins the bird community promptly at the first good chance after the middle of April, is sometimes a little tardy in joining the choir; and, if it meets with discouraging weather, is satisfied for a time with simply announcing itself by name. Later its short and energetic song becomes a striking feature of the bird chorus about the hedgerows, and bushy borders of woods, fields and swamps.

Singing becomes decadent towards the end of July, or early in August, and closes at any time from the first to the middle of the month—August 4-18, 20, 22. There is no well-defined second song-period, but I have heard its song several times in September, and once in October (October 7, 1881), when it was several times repeated.

In late summer, after singing has ceased, the *chewink* notes become weak and infrequent, and may be wholly intermitted for

a time, but they are resumed in their usual vehemence before the species departs.

Cardinalis virginianus. CARDINAL GROSBEAK.

This bird is of irregular occurrence, but I have heard it in full song in every month from April to August inclusive. I have also seen it in every month from October to February, but through this time its only utterance was a fine sharp *chip* or *click*.

At this northernmost limit of its habitat its voice is certainly not less loud and forcible than in the South. Before I was familiar with its notes I was startled from sleep early one July morning by a violent whistling. It sounded so nervously hurried and intentionally loud that, in my sudden awakening, I thought it an alarm intended to arouse me. A moment later could have been seen at the window a figure *en déshabillé*, and on a near grape-vine trellis a Cardinal Grosbeak in the rôle of a fiery-coated alarmist.

Zamelodia ludoviciana. ROSE-BREASTED GROSBEAK.

The few Rose-breasted Grosbeaks which summer in the section of country covered by my observations sing well into the dog-days. I have heard them till the middle of August.

In the autumn the adult male seems to be uncommon, and I have never heard its song at that season; but on September 23, 1879, I shot a young male with crimsoning breast, which was in full song.

Passerina cyanea. INDIGO-BIRD.

The Indigo-bird sings faithfully through the midsummer; but the silencing influence that begins to overtake the birds at this time, reaches it about the end of July, and it is soon quieted. The last days of singing are between the end of July and mid-August; my records giving August 15 and 16 as dates of latest songs.

I have ever found this bird uncommon in the fall, and my scant data respecting its singing in that season are comprehended between the last two weeks of September.

The song-flight of the Indigo-bird I have but once witnessed —on September 23, 1879.

Regarding the singing of the Indigo-bird, Mr. Fred. T. Jencks, of Providence, writes me that he is able to distinguish by their songs the younger from the fully adult birds at a distance of at least one hundred and fifty yards. The songs of younger birds are more simple and less musical than those of adults. I am myself familiar with differences in the songs of Indigo-birds such as Mr. Jencks describes, but never traced them to their cause.

Dolichonyx oryzivorus. BOBOLINK.

During its half-year visit the Bobolink sings only in May, June and part of July. Through the remainder of its stay, it has only a single short note. This is of a softly metallic tone, and in late summer and early fall is showered down over the country, and sometimes over the city, and at night, by flocks of the birds passing on their southward way. It is also a characteristic bird-note of the late summer, about wide weedy meadows, where tall Compositæ and other rankly growing plants uphold a rich harvest of seeds.

The song of the Bobolink is one of the first to drop out of the bird-chorus. I have not often heard it in July, and never later than the middle of the month; though where the bird is more common in the breeding season than with me singing doubtless continues later.

Molothrus pecoris. COWBIRD.

The song-utterance of this species, although giving a slight reminder of its near relationship to the Blackbirds, is nevertheless strikingly unique. It has an indefinite beginning, which is continued into a high attenuated note, ending with a sound curiously like that of bubbling water. This irresistibly suggests a bubble-like bursting forth of sound after a long audible inhalation. It seems to be a sort of appendage to the ordinary song-notes, and is, perhaps, achieved only by vigorous individuals, or under the stimulus of courtship. Its production appears to be a matter of some difficulty, being attended by singular bodily contortions and a spreading and stiffening of the wings and tail·

The ardent male usually arranges to have these antics witnessed by two or more of the plainer sex, as we are forced to speak of the females of most birds, and we cannot doubt their efficacy in captivating the objects of his ambitious passion. But as the breeding season wears on, and the novelty of being many-wived has, perhaps, come to be a matter of some concern with this polygamist, its enthusiasm diminishes, and many songs fail at the terminal note of ebullition. Songs of this character are referred to beyond as half-songs.

Cowbirds are somewhat uncertain and capricious in the use of their voices, and show much variability in different years in the continuousness of song. As a general thing singing is infrequent in June, although extending through this month and into July. At this time the half-song is almost exclusively in use, but the bubble notes may be produced as long as the bird remains in voice. Dates of latest songs of the first period range from July 6 to 23.

There seems to be no regularity about singing in the fall; but I have heard imperfect notes and half-songs at different times within a month after the middle of September. Sometimes, in the autumn, when Cowbirds are assembled in small flocks, they become garrulous, when their commingled utterance of low notes produces a sound as of subdued warbling.

On October 8, 1882, I observed the male of a pair of Cowbirds striving, and with some success, to produce before its mate its full spring song, not forgetting the associated bodily contortions. Such behavior, in an autumn bird, was at least highly unseasonable, if not suggestive of illegitimate intentions.

The singular bodily action which accompanies the vocal expression of the Cowbird conveys the suggestion that the air-sacs of the body are brought into play in the production of song. The ducking of its head, the spasmodic motion of its tail, the half-opening of its wings, the swelling of its body, which collapses with the culminating notes; all this, seems to point to the utilization of the air-sacs—to their inflation and the muscular expulsion of the contained air—in the execution of its singular vocal performance. Indeed, from the peculiar bodily action of many birds while in song, it is reasonable to suppose that the air-sacs are often important adjuncts of the lungs and vocal organs. Such bodily motions during singing, and the special

muscular acts which, in many birds, are synchronous with the utterance of certain notes, may thus be motions which are necessary to the special operation of the air-sacs.

And if this be true it affords an explanation of the fact that the song of many birds is often more varied and prolonged in flight than when they are at rest, and that the highest vocal expression of some birds, as the Oven-bird, the Maryland Yellow-throat, and the Yellow-breasted Chat, for examples, is achieved only when the birds are on the wing.

The surprising length of time for which singing is often sustained argues greater resources of air supply than the mere capacity of the lungs, and here again we may have recourse to a special operation of the pneumatic system.

We have already seen that birds in general are most voiceful when having least fat; if the growth of fat on the body reduces the capacity of any of the air-sacs a reason for this is evident.

(*To be continued.*)

NOTES ON THE BIRDS OF THE NEARER ISLANDS, ALASKA.

BY LUCIEN M. TURNER.

THE localities here included embrace the islands of Attoo, Agattoo, and Semechi, with their outlying islets. The geographical position of the group lies between 185° 30′ and 187° 30′ W. of Greenwich. The parallel of 52° N. passes near their center. The group forms the westernmost portion of the Aleutian chain of islands, and, taken collectively, is known as the Bleezhnee or Nearer Islands, being so designated by the earlier explorers because they lie nearest to the Asiatic coast.

Semechi is the smallest of the three, and lies about twenty-three miles to the southeast of Attoo. It is quite low on the southern side, where are found innumerable ponds and lakes, some of the latter being of considerable area. The low-grounds are covered with vegetation of various kinds, and the shallower ponds, in some instances, yield vegetable food in abundance for the great numbers

of Ducks and Geese which breed there. On the northern side of the island the shore is precipitous, rising at several localities several hundred feet, and abounds in niches, ledges, and crevices where breed vast numbers of Puffins, Auks, Murres, and Guillemots, which find an abundance of food in the neighboring sea.

Agattoo Island forms the southwest portion of the group, and is of considerable size, being but slightly less than Attoo, and much larger than Semechi. The shores of this island are more elevated and abrupt, having many indentations, at the head of which small streams issue from the larger lakes. The general character of the surface is undulating, though much broken, being everywhere intersected by a network of ravines and valleys, separating hills and mountains, some of which latter are over 1600 feet in height. These valleys and the lower grounds contain many lakes, in which is found an abundance of fresh-water vegetation. High grasses and other plants crown the cliffs and occupy the tops of rocks, affording suitable nesting places for various Auks and Puffins. Thousands of Geese are also hatched here. Here too the Snowy Owl and two species of Hawks breed, the young of the water birds affording them abundant food. The only mammals occurring on either Semechi or Agattoo are marine species — the sea-otter, sea-lion, some three species of hair-seals. An occasional fur-seal may also be seen in the vicinity.

Attoo is the largest of the group, and has an east and west extension of nearly thirty-five miles, and a breadth of nearly fourteen miles. The shore is remarkably indented, often for several miles, forming bays and coves. The shores are mostly abrupt, with but little beach, excepting in certain places on portions of the northern side and eastern end of the island, where several wide-mouthed valleys gradually rise toward the hillsides, which in most instances are very steep. Attoo is much more mountainous than either of the other islands of the group. The mountains are high, rising in a few instances above 2500 feet, and are accessible only by most fatiguing ascents, the approaches to the summits being steep and difficult. The mountain range extends length-wise through the island, with several spurs of irregular height shooting off at various angles from the main range. The valleys, some of which are quite broad, are traversed by streams, two of which, issuing from large lakes, are of great size. The sides of the hills and the valleys are plentifully clothed with vegetation, and many berries

are to be found. In the fall of the year these are the favorite feeding-grounds of thousands of Geese, a few of which are hatched on Semechi but the greater part on Agattoo. The Geese, feeding on the ripening berries in late August, September, and October, rapidly fatten after their moult and become so heavy that I have known them to burst their skins in falling when shot on the wing. The high bluffs afford the Cormorants a safe breeding-place; the grassy ledges near the water form convenient nesting sites for Eiders; and in the recesses of the rocks Auks and Puffins abound. Here blue foxes (*Vulpes lagopus*) are found in numbers. The natives have very wisely restricted the foxes to this large island, otherwise they would not be able to procure the birds — Puffins and Guillemots — from whose skins they make a long garment for protection against the cold of winter. These garments were used nearly exclusively during the Russian *régime*, and previous to the discovery of the islands they were the only garment worn by either sex. About forty skins are required for a single garment.

These islands possess a warmer climate than the eastern portion of the Aleutian Chain, the winter temperature never falling as low as zero. The lowest degree of cold recorded by me was 10.5° F., and this in the coldest season the natives could remember. The summer is often bright and warm; the maximum temperature reaching 76° F. Much cloudy weather occurs at times, but it is generally fair from July to October. Rain falls every month in the year, although March is known as the snow month. Fogs often continue for several days at a time, but seldom overhang the land; Semechi and Agattoo, however, are more foggy than Attoo. Rain often falls heavily, but only for brief intervals. Storms are often excessively severe, and during the winter are of frequent occurrence, the winds from the southwest and southeast being often very violent, causing a terrible sea to dash against the shores.

The following list of birds consists of species actually collected, or else identified beyond possibility of error, with the addition, for the sake of completeness, of a few species not observed by the writer, but obtained or observed by Prof. W. H. Dall, and recorded in his valuable 'Notes on the Avifauna of the Aleutian Islands, especially those West of Unalashka' (San Francisco, March 14, 1874).

The list is small, but will doubtless be much increased when the locality is more thoroughly gone over, as the engrossing nature of other duties prevented me from giving as much time to the birds as was desirable. My stay on this group was from June 30, 1880, to May 19, 1881.

19.* **Cinclus mexicanus** *Swains.* A single individual, seen in August.

66.† **Troglodytes alascensis** *Baird.* Abundant. Resident.

? **Motacilla ocularis** *Swinh.* A single individual, seen May 14, 1881, was referred to this species.

70. **Budytes flavus** (*Linn.*) *Gray.* Rare. Late summer visitor. Not known to breed.

71.† **Anthus pennsilvanicus** (*Lath.*) *Thienem.* Not common. Summer visitor. Two pairs known to breed. No specimen secured.

174.† **Leucosticte griseinucha** (*Brandt*) *Bp.* Common. Resident.

186.† **Plectrophenax nivalis** (*Linn.*) *Stejn.* Common. Resident.

187.† **Calcarius lapponicus** (*Linn.*) *Stejn.* Common. Summer visitor. Breeds.

193.† **Passerculus sandwichensis** (*Gmel.*) *Baird.* Summer visitor. Breeds. Not common.

232.† **Melospiza cinerea** (*Gmel.*) *Ridgw.* Abundant. Resident.

280.† **Corvus corax carnivorus** (*Bartr.*) *Ridgw.* Abundant. Resident. Specimens not secured.

396.† **Asio accipitrinus** (*Pall.*) *Newton.* Not common. Resident.

406.† **Nyctea nyctea** (*Linn.*) *Licht.* Not common. Resident.

414*a*.† **Falco peregrinus pealei** *Ridgw.* Not rare. Resident.

430. **Circus hudsonius** (*Linn.*) *Vieill.* Rare. Summer visitor only.

449. **Aquila chrysaëtus canadensis** (*Linn.*) *Ridgw.* Rare. An occasional visitor only.

451. **Haliæetus leucocephalus** (*Linn.*) *Savig.* Single individual seen.

†**Lagopus rupestris** var. Plentiful. Resident.

508. **Hæmatopus bachmani** *Aud.* Rare visitor at Attoo; occurs oftener at Semechi and Agattoo.

509. **Arenaria interpres** (*Linn.*) *Vieill.* Rare. Only seen in summer.

515*a*. **Charadrius dominicus fulvus** (*Gmel.*) *Ridgw.* Rare. Fall visitor only. No specimen secured.

Ægialites sp. Rare. Four individuals seen in September.

531.† **Tringa maculata** *Vieill.* Common. Summer visitor.

553. **Heteractitis incanus** (*Gmel.*) *Stejn.* Rare. Summer visitor.

564.† **Phalaropus lobatus** (*Linn.*) *Stejn.* Abundant. Summer visitor.

584. **Grus canadensis** (*Linn.*) *Temm.* Very rare. Fall straggler.

588. **Olor columbianus** (*Ord*) *Stejn.* Winter visitor. Not seen every year. No specimen secured.

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* The number preceding the species refers to the species having that number in Ridgway's 'Nomenclature of North American Birds in U. S. National Museum,' 1881. Species marked † indicate those breeding.

593*a*. **Anser albifrons gambeli** (*Hartl.*) *Coues*. Casual visitor, according to Dall.

594*a*.† **Branta canadensis hutchinsi** (*Sw. & Rich*) *Ridgw.*—Abundant. Summer visitor.

598. **Philacte canagica** (*Sevast.*) *Bann.* Winter visitor. Abundant.

601. **Anas boschas** *Linn.* Not common. Fall and spring visitor.

607. **Anas americana** *Gmel.* Rare. Summer visitor. Not known to breed.

612.† **Anas carolinensis** *Gmel.* Common in summer. No specimen secured.

614.† **Fulix marila** (*Linn.*) *Baird.* Common. Resident.

616.† **Fulix collaris** (*Donov.*) *Baird.* Not common. Resident.

Clangula sp. Rare. Seen only in winter.

621. **Clangula albeola** (*Linn.*) *Steph.* Winter visitor only.

622.† **Histrionicus histrionicus** (*Linn.*) *Boie.* Very abundant. Resident.

623.† **Harelda hyemalis** (*Linn.*) *Brehm.* Very abundant in winter. Sparingly breeds.

625.† **Eniconetta stelleri** (*Pall.*) *Gray.* Abundant in winter. Breeds sparingly.

626.† **Arctonetta fischeri** (*Brandt*) *Blak.* Common. Resident. Breeds.

628.† **Somateria v-nigra** *Gray.* Common. Resident. Breeds.

630.† **Œdemia americana** *Sw. & Rich.* Rare in summer. Plentiful in winter. Breeds sparingly.

633.† **Œdemia perspicillata** (*Cass.*) *Baird.* Common. Resident. Breeds sparingly.

637.† **Merganser serrator** (*Linn.*) *Schäff.* Common. Resident. Breeds.

643*b*.† **Phalacrocorax dilophus cincinnatus** (*Brandt*) *Ridgw.* Abundant. Resident. Breeds.

646.† **Phalacrocorax pelagicus** *Pall.* Numerous. Resident. Breeds.

658*a*. **Rissa tridactyla pollicaris** *Stejn.* Not abundant. Not known to breed.

659.† **Rissa brevirostris** *Brandt.* Abundant. Breeds. Not observed in winter.

662.† **Larus glaucescens** *Licht.* Abundant. Breeds.

687.† **Sterna paradisæa** *Brünn.* Plentiful. Breeding on Semechi.

698.† **Stercorarius parasiticus** (*Linn.*) *Schäff.* Common. Breeds on Agattoo.

699. **Stercorarius longicaudus** *Vieill.* Rare at Attoo. Two individuals seen.

701. **Diomedea albatrus** (*Temm.*) *Pall.* Rather common in March and April only.

705*a*. **Fulmarus glacialis glupischa** *Stejn.* Rare. Occurs mostly at Semechi.

723.† **Cymochorea leucorrhoa** (*Vieill.*) *Coues.* Breeds abundantly, according to Dall.

726.† **Oceanodroma furcata** (*Gm.*) *Reich.* Breeds. Specimens from Dall in U. S. Museum.

Colymbus sp.—Winter. An individual seen at Attoo.

739.† **Urinator pacificus** (*Lawr.*) *Stejn.* Common. Breeding.

740.† **Urinator lumme** (*Brünn.*) *Stejn.* Abundant. Resident. Breeds.

744.† **Fratercula corniculata** (*Naum.*) *Gray.* Extremely abundant. Breeds. Not resident.

745.† **Lunda cirrhata** *Pall.* Extremely abundant. Breeds. Not resident.

747.† **Cyclorrhynchus psittacula** (*Pall.*) *Stejn.* Plentiful on Agattoo. Breeds. Not resident.

748.† **Simorhynchus cristatellus** (*Pall.*) *Merrem.* Plentiful. Breeds. Not resident.

749.† **Simorhynchus pygmæus** (*Gmel.*) *Brandt.* Abundant. Breeds. Not resident.

750.† **Simorhynchus pusillus** (*Pall.*) *Schleg.* Abundant. Breeds on Agattoo. Not resident.

753.† **Synthliboramphus antiquus** (*Gmel.*) *Brandt.* Abundant. Breeds. Sparingly resident.

Brachyramphus sp. Seen in late fall and early winter only.

761†. **Cepphus columba** *Pall.* Common. Breeds. Not resident.

763*a*.† **Uriâ lomvia arra** (*Pall.*) *Ridgw.* Abundant. Resident.

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ON THE BREEDING HABITS OF SOME ARIZONA BIRDS.

BY W. E. D. SCOTT.

SECOND PAPER. *Icterus cucullatus.*

THE individual taste of birds in the matter of their nests is so well exemplified by the great differentiation in the nests of the Hooded Oriole (*Icterus cucullatus*), which is a very common breeding bird in the cañon described in the former paper of this series, that I propose to give a detailed description of ten nests taken here during the past summer, and incidentally to call attention to other nests of the same species taken in regions close at hand.

The birds arrive here about the middle of April, and are to be found until the last of September, and a few even well into

October. Such, at least, was my experience during the season of 1884. They are not great songsters, but are very conspicuous, both by their plumage and by their peculiar call or rattle, which is very similar to that of the Baltimore Oriole, only it is more prolonged. Two broods are raised, and not infrequently three, during their stay here, and a new home is built for each brood. The old birds are great workers when building their nests, and the rapidity with which so elaborate a structure is completed is astonishing. Three or four days at most generally suffice to complete the structure. No detailed description of the eggs will be essential in this connection, they have been so often carefully described, and only when unusual shall I dwell upon them. Three or four is the usual number laid, though after the first set four is unusual.

The ten nests to be presently described were all taken from three kinds of trees, cottonwood, sycamore, and a kind of ash; and, considering that the location of all were not a mile apart, it would seem that taste or fancy had much to do with producing in the same locality, where the materials used by all of the builders are abundant and easily obtained, structures varying so widely in general appearance, in the materials of which they are built, and in their method of building, as well as in mode of attachment to the tree.

Some of the nests, it will be seen, are as truly pensile as those of *Icterus galbula;* others are more like those of *Icterus spurius;* while one at least rests on a stout twig and is hardly to be regarded as a hanging nest at all.

The following data are taken from the nests before me and from notes made when the nests were collected.

No. 1. Nest of May 28. In a cottonwood, forty-five feet from the ground. Contained a full set of three eggs, which were fresh and of the usual coloration. They measure .92 × .60, .92 × .63, and .85 × .62, respectively. The nest is a rather bulky structure, and is built externally of coarse green grasses, rather loosely woven, but so knitted and tied together as to form a very strong wall. The general appearance of the surface is smooth, though the contour of the whole is unsymmetrical. There is a distinct lining, which is of fine dried grasses very compactly laid together, but not woven, in parallel circles, one above the other, reaching to the rim of the nest. Just in the bottom there is one large feather of a Hawk and a little down.

The nest is attached to three main twigs at the extremity of a branch, and one of these twigs is again divided into three smaller twigs. One of the main twigs has many leaves, and is fastened to the wall of the nest for five inches, and some of the leaves are woven into the structure. A second twig is attached at a point about an inch and a half from the first to the wall of the nest for four inches, and has three leaves, all of which are fastened to the nest. The twig spoken of as being divided into three branches has a very strong band and reeving of grasses joining it to the nest just where it forks, and one branch is attached to the side of the nest for four inches, one for two, and one for one inch. Outside the greatest depth is six inches, while inside the greatest depth is three inches and a half, so that the bottom of the nest is very thick; in fact the walls are thick throughout, being fully half an inch at the rim of the nest where they are thinnest. The diameter of the inside of the nest at the top, where it is largest, is four inches, and the shape inside is that of a shallow cup.

No. 2. A nest taken the same day, and in the same kind of tree, about forty feet distant from that just described, is almost identical with it in structure. It is attached on its sides to four twigs, the attachments varying from three to five inches. It was about twelve feet from the ground and contained three fresh eggs.

No. 3. Nest of May 29. Ash tree. Thirty feet from ground. Three eggs slightly incubated. Typical. Rather a bulky, purse-shaped structure but with a very wide opening. The walls are not thick, except at the bottom of the nest, and are composed of dry yucca fibre rather loosely woven. The lining is of the same material, only finer and softer. The nest is fastened to two twigs and the clusters of leaves belonging to them. One twig is attached to the side of the nest for four inches, the other only slightly to the rim. The exterior depth is six and the interior depth four inches, and the diameter of the opening is three inches.

No. 4. Nest of the 17th of June; in an ash tree, about twenty-five feet from the ground, and contained four eggs. It is a true pensile nest and is built of yucca fibre and grasses externally, the whole very loosely put together and but slightly woven. There is a very slight lining of a few horse hairs and a little cotton-waste. The walls are thick and the opening small. The

general shape is that of a purse or pouch. The exterior depth is seven and the interior depth five inches. The opening, which is covered by leaves hanging over it, is oval, with a greater diameter of two and a half and a lesser diameter of two inches. The eggs are typical. There are a number of bits of long grasses and yucca fibers pendant from the walls outside, not having been woven into the structure.

No. 5. Nest of June 18. In a sycamore tree, twenty feet from the ground. Four typical eggs. Fresh. Closely resembles the ordinary structure of *Icterus galbula*, but is rather shallower and the opening larger. Is attached to the tree only at three points on the rim of the nest, and truly pensile. Built of same material inside and out, *i. e.*, fine dried grasses. The walls are about the same thickness throughout—about a quarter of an inch. It is very compactly woven and is symmetrical. The depth outside is three inches and inside two and three-quarter inches, and the opening has a diameter of three inches.

No. 6. Nest of June 20. Had four fresh eggs, which are smaller and less sharply pointed than typical eggs, and have the markings confined to the cluster of coloring at the larger end. They measure .84 × .63, .80 × .65, .86 × .63, and .83 × .65. The whole structure is very like that built ordinarily by *Icterus spurius*. Fine green grasses closely woven form the walls, and there is a lining of very fine silky dry grasses and some plant down like that from thistles. It is small and compact, having an exterior depth of three and a half and an interior depth of three inches. Opening round, and two and a half inches in diameter. There are no attachments to twigs but at the rim.

No. 7. Nest of June 25. In a sycamore, twelve feet from the ground. Outside, coarse green grasses put together much as in No. 1 (nest of May 28). It is attached from top to bottom on its sides to two twigs, the distance being four inches, and grasses are tied and woven to one of these where it extends below the structure, forming a ball an inch in diameter on which the nest partly rests. There is a third twig also slightly fastened to the nest, and three large leaves growing from the twigs are sewed to the rim of the nest for all but about an inch and a half of its circumference, forming a roof or covering, and leaving only the small space spoken of for entrance. The measurements of

the structure are: exterior depth four and interior depth two and a half inches. The shape of the interior is oval, the greater diameter being three and a half and the lesser diameter two and a quarter inches. The whole is rather bulky and unsymmetrical, and, though smoothly lined inside with fine dry grasses and cotton string, the walls outside are rough and uneven.

No. 8. Nest of July 20. Built in a sycamore, fifteen feet from the ground, and contained four eggs slightly incubated, and one fresh egg of *Molothorus ater obscurus*, which was fresh, and measures .75 × .61. This is a true pensile nest, the shape being that of a deep purse. It is built of the same materials throughout—very fine dried grasses—and is almost concealed by several large leaves, depending from twigs close by, being 'sewed' to its walls outside. The walls are not at all thick, and the nest, though deep, is not bulky. The external depth is six and the internal depth five and a half inches. The greatest external diameter is three and a quarter inches, and the diameter of the opening, which is round, is two and a half inches.

No. 9. Nest of July 1. Built in a sycamore, forty-five feet from the ground. Had an incomplete set of eggs, the female having been killed before all were laid. It is a very bulky and elaborate structure, and a general view of it gives the impression of a nest sixteen or seventeen inches in depth by seven inches in diameter externally. The outside is composed of dried grasses and the blades of a small kind of yucca, also dry. There are many of these only partially woven into the structure by their smaller ends, the rest of the blade, with its broad base, being left hanging and dangling. These blades are about sixteen inches long, are from one-half to three-quarters of an inch broad at the base, and gradually taper to a sharp point. Only half of the length is woven into the nest. It is truly pensile and the interior is of about the average size, the walls being loosely woven and very thick. The lining is of fine dried grasses and a little cotton. Outside the nest proper is eight and a half inches deep, but appears, from the dangling yucca blades, twice that depth. The greatest external diameter of the nest proper is six inches, though from the yucca blades this, too, appears larger. At one point from the rim a sort of rope of grasses is woven to attach it to a twig rather more than five inches above. The interior diameter is three and a quarter inches at the opening of the nest,

where it is largest, and the interior depth is three and a half inches.

No. 10. Second nest of July 20. Built in a sycamore, twenty-five feet from the ground. Three fresh eggs, which are unusual in being short and very much rounded. One is unfortunately broken; the others measure .78 × .62, and .84 × .63, respectively. A branch running out from the tree, so as to be almost parallel with the surface of the ground, has, near its extremity, three twigs that point downward. The middle one of these is about five inches from either of the others. There is little or no attempt to draw these together, and as the nest is attached to all three twigs the structure is a peculiar one. The nest proper is between two of these twigs, and about four inches below the branch. The middle twig, on which the structure mainly depends, crosses the nest at an angle, and being slightly curved reaches under and across the bottom of the nest, supporting it, and protrudes beyond. For all the distance where the nest touches it, it is firmly tied and sewed fast, and where it is again free from the structure there is a ball of tightly woven grasses like that described in the nest of May 28. One of the outside twigs, running parallel to the one just spoken of, is fastened to the wall of the nest for four inches. As these twigs are almost on opposite sides of the nest, it is so far very symmetrical, and, being composed externally of green grasses, it reminds one strongly of the nest of *Icterus spurius*. But the builders, apparently not content with the fastenings, now built a sort of rope or stay of grasses which, reaching slightly upward and to the third of the twigs mentioned, is fastened to some leaves and firmly to the twig itself. This brace is rather more than five inches long and about an inch thick, though slightly flattened. The inside of the nest is beautifully lined with woven yucca fiber and soft dried grasses. Outside it is nearly four inches deep, and inside but two and a half inches deep. The opening is oval, one diameter being two and a half and the other three and a half inches. A large leaf depending from one of the twigs is sewed tightly to the rim so nearly all the way round, and forming so complete a roof or covering, that difficulty was experienced in taking the eggs from the nest.

This completes the description of *all* of the nests, ten in in number, taken in the cañon proper; a word as to some

other nests of this species, found at but a short distance away, will complete the record of nests observed. At a point on a cactus desert, about a mile from where most of the nests enumerated were taken, I found a nest of this species built on the trunk or stem of a yucca about eight feet from the ground. It contained young birds almost ready to leave the nest. The trunks of many of the yuccas are covered with dead leaves hanging downward, and this nest, which is a cup-like structure, built of green grasses closely woven, is placed on the *outside* of the dried leaves and is only attached to one of them. It is rather more than three inches deep, and is attached to a single leaf for this distance. No leaves cover it or conceal it, and the general appearance is that of a cup resting against the trunk of a tree with no apparent attachment to it.

In the mesquite regions about Tucson the nests are frequently built in the mistletoe that grows plentifully on that tree. These nests are generally symmetrical, shallow cups in shape, and are almost always semi-pensile.

ON *BUTEO HARLANI* (AUD.) AND *B. COOPERI* CASS.

BY ROBERT RIDGWAY.

SINCE the publication in 'The Auk,' for July, 1884 (pp. 253, 254), of the article suggesting the possible identity of these two birds, the National Museum has purchased from Mr. G. H. Ragsdale, of Gainesville, Texas, a specimen which proves conclusively that *B. harlani* has, like *B. borealis* and *B. swainsoni*, a light-colored phase, but at the same time, unfortunately, does not dispose of the question of *B. cooperi*. The recently acquired specimen, which is undoubtedly *B. harlani*, is even decidedly lighter in color than *B. cooperi*, the tail being almost wholly white, as are also the upper coverts, while the scapulars and wing-coverts have a much greater amount of light spotting. Notwithstanding its very light colors, however, the two particularly diagnostic characters of *B. cooperi*, mentioned in the article above referred to, viz., the unusual length of the naked portion of the tarsus, in front, and the plumbeous or almost glau-

cous color of the outer surface of the primaries, are wanting, and the type of the last-named bird, therefore, remains unique in respect to at least the last mentioned of these two characters.

The following measurements of *B. cooperi* and two light colored examples of *B. harlani* will show the differences in the measurements of the tarsi: —

Species.	*Wing.*	*Tail.*	*Culmen.*	*Tarsus.*	*Bare part of tarsus in front.*	*Middle toe.*
*B. cooperi**....	15.75	9.10	1.05	3.15	2.25	1.70
B. harlani†....	16.25	10.00	1.10	2.85	1.75	1.75
B. harlani‡....	16.50	9.50	1.10	3.25	——	1.80

* Type. No. 8525, U. S. Nat. Mus., Santa Clara, Cal.

† No. 99,969, Gainesville, Texas.

‡ Coll. C. E. Aiken, Colorado Springs. This specimen has been previously referred to by me as *B. cooperi*.

For reasons which are explained in the paper referred to, I am unable to give a description of the Colorado specimen; but my recollection is that it differed materially from the type of *B. cooperi* in the color of the primaries, and that there was some difference in the color of the tail; in other words, that as to the former character it was decidedly more like the Texas specimen. The latter differs from the type of *B. cooperi* in the following particulars: —

B. cooperi. Outer surface of primaries hoary plumbeous, with a glaucous cast, the shafts dusky, in strong contrast. Upper surface of tail with rufous and grayish prevailing (the former in excess of the latter), all the feathers irregularly and confusedly dashed longitudinally with dusky; about .60 of an inch from the tip (measured on middle rectrices) the tail crossed by a broad but broken band of dusky, this succeeded by rufous, the tip white; dark markings across abdomen narrowly lanceolate. Under surface of tail showing distinct but much broken subterminal dusky band.

B. harlani. Outer surface of primaries dull brownish slate, finely mottled, more or less, with lighter and darker, the shafts brownish white (more dusky terminally). Upper surface of tail white, the edges of the feathers confusedly mottled with brownish gray, the color somewhat intensified in the region of the usual subterminal band; dark markings across abdomen broadly guttate. Under surface of tail uniform white.

From the material which I have thus far been able to examine, I am, on account of the above-mentioned facts, not quite prepared to relinquish the claims of *B. cooperi* as a distinct species, although still of the opinion that additional specimens would probably break down the characters on which it at present stands.

REMARKS ON THE CALIFORNIAN VULTURE (*PSEUDOGRYPHUS CALIFORNIANUS*).

BY ROBERT RIDGWAY.

AMONG some remarks by me respecting the distinctive characters of the genus *Pseudogryphus*, published in the 'Nuttall Bulletin' for April, 1880, p. 80, occurs the following statement: "In the enumeration of the diagnostic characters of this genus in 'History of North American Birds' (Vol. III, pp. 337, 338), ... a very important one was overlooked, viz., the possession of fourteen rectrices, in which '*Vultur*' *californianus* apparently differs from all other *Sarcorhamphidæ*." Subsequently, Mr. J. H. Gurney wrote me asking whether all specimens in the National Museum collection possessed fourteen rectrices, and stating that he had not been able to find more than twelve in those preserved in the Norwich Museum. This prompted a reëxamination into the matter, with results tending to annul, in great measure, the statement quoted, since it is proven that the possession of fourteen rectrices by this species is, if not exceptional, at least not the rule. The writer is unable to remember the basis of his statement that *P. californianus* possessed this number of tail-feathers, but it was probably based on the adult specimen described in 'History of North American Birds,' (Vol. III, p. 339), now no longer in the National Museum collection, having been a badly prepared, unpoisoned skin, which was subsequently destroyed by insects. The only two examples now in the National Museum, both young birds, each possess but twelve rectrices, as do also two fine adults in Mr. Henshaw's collection. A specimen in the American Museum of Natural History, in New York City, however, possesses *thirteen* tail-feathers, one being wanting, so there must have been originally fourteen, which is the number represented by Audubon in his plate of this species and, according to Mr. Gurney (Cat. Diurn. Accipitres, 1884, p. 3, foot-note), being "a peculiarity first noticed by Audubon," though I am unable to find where he makes mention of it, since in his description (B. Am., oct. ed., I, p. 14) he gives the number as twelve. Swainson and Richardson (Fauna Boreali-Americana, II, p. 3) in their description of this species,

based on "male and female specimens shot by Mr. Douglas, in lat. 45½° N., and now in the Museum of the Zoölogical Society," state that "the tail is even, and consists of fourteen feathers"; so there can be no doubt that the number of tail-feathers in this species is variable, and therefore not available as a generic character.

In my article referred to above, it is stated that this species is "fully the peer of the Condor in size, the wing and tail averaging even decidedly greater. It is not, however, quite so strongly built, the beak and feet being proportionately weaker." Comparative measurements were there given of fully adult males of the two species, showing that by a similar method of deduction, the alar expanse should be about 9 feet 2 inches in *S. gryphus*, and 9 feet 8 inches in *P. californianus*. I was not aware at the time that the latter figures were exactly those of an adult obtained by Douglas, as recorded by Swainson and Richardson (l. c.), nor had I read Professor Orton's paper in the 'Annals and Magazine of Natural History,' Vol. VIII, 1871, pp. 185-192, entitled 'On the Condors of the Equatorial Andes,' in which the exaggerations of writers in respect to the size of the Condor are the subject specially treated, and from which the following is quoted: "A full-grown male from the most celebrated locality in the Andes, now in Vassar College, has a stretch of nine feet. Humboldt never found one to measure over nine feet; and the largest specimen seen by Darwin was eight and a half feet from tip to tip. An old male in the Zoölogical Gardens of London measures eleven feet. Von Tschudi says he found one with a spread of fourteen feet ten inches; but he invalidates his testimony by the subsequent statement that the full-grown condor measures from twelve to thirteen feet."

The two adult Californian Vultures in Mr. Henshaw's collection, both measured and weighed by Mr. Henshaw before skinning, were males; one spread eight feet nine inches and weighed twenty pounds, while the other spread nine feet one inch and weighed twenty-three pounds. Mr. Henshaw, while in the locality where his specimens were shot, was informed by perfectly reliable persons of two killed the previous year which spread eleven feet, by careful measurement.

Mr. Henshaw's specimens are neither of them very old birds, having the bill still tinged with horn-color, and are decidedly

smaller than some that have been examined, as the following measurements, taken from the dried skins, will show. The fresh colors of the soft parts, the alar extent, and weight, noted by Mr. Henshaw before the specimens were skinned, are also given:—

Larger specimen: Wing, 32.00 inches; tail, 16.00; culmen, 1.50, depth of bill, 1.25, width, .95; length of head, from point of bill to occiput, 6.00; tarsus, 4.70; middle toe, 4.10, with claw, 5.45. Weight, 23 lbs.; spread of wings, 9 feet, 1 inch. "Head and neck light yellow, fading to pinkish on lower neck; iris reddish brown; feet dull bluish white."

Smaller specimen: Wing, 31.25 inches; tail, 15.50; culmen, 1.50, depth of bill, 1.20, width, .95; length of head, 6.20; tarsus, 4.40; middle toe, 4.00, with claw, 5.40. Weight, 20 lbs.; spread of wings, 8 feet, 9 inches. "Head and neck light orange; iris red; feet pinkish flesh color.

Since the above was put in type, four specimens in the flesh have been received at the National Museum. The weight, after their reception was not taken, on account of the specimens having been eviscerated; but they were carefully measured, with the following result:—

No. 103,064, *adult*, U. S. Nat. Mus.—Total length, 44 inches; extent of wings, 110.70 inches.

No. 103,065, *juv.* (first year).—Total length, 44.25 inches; extent of wings, 98.50 inches.

No. 103,066, *juv.* (first year).—Total length, 46.50 inches; extent of wings, 108.25 inches.

No. 103,067, *juv.* (first year).—Total length, 43.50 inches; extent of wings, 106 inches.

NOTE ON *SARCORHAMPHUS ÆQUATORIALIS* SHARPE.

BY ROBERT RIDGWAY.

IN Volume I of the 'Catalogue of Birds in the British Museum' Mr. R. Bowdler Sharpe describes, under the name *Sarcorhamphus æquatorialis* (p. 21), a supposed new species of Condor, to which the following characters were ascribed: "Smaller than *S. gryphus;* entirely brown in plumage; bill blackish." The habitat was given as Ecuador (Quito) and, with

a query, Colombia. The supposed new species was based in part on a specimen living (in 1873) in the Zoölogical Gardens at Amsterdam which was "apparently fully adult, with a perfectly formed erect wattle, but brown in colour all over," and partly on some statements made by Professor Orton in the 'Annals of Natural History' for 1871, pages 186, 187.

In a paper published in the 'Bulletin of the Nuttall Ornithological Club,' April, 1880, pp. 77-84, I called attention (on p. 81) to a Condor then living in the Central Park Menagerie, New York City, captured alive, when at least three months old, on Mount Cauquences, Chili, received at the menagerie July 23, 1875, and which in December, 1878, or more than three years later, corresponded entirely with the *Sarcorhamphus æquatorialis* of Sharpe.

In the 'Proceedings' of the Zoölogical Society of London for 1883, page 349, Mr. Sclater mentions and figures (pl. xxxv) "a Condor from Peru, which had been presented to the Society by Mr. John J. North, on the 13th of June, 1877, and which was still living in the Society's Gardens." It is further stated that "after six years it was in nearly the same uniform brown plumage as that in which it had been originally received." Mr. Sclater, it was announced, "had now come to the conclusion that this must be a specimen of the '*Condor pardo*', or Brown Condor, spoken of by Mr. J. Orton, and subsequently named *Sarcorhamphus æquatorialis* by Sharpe in his 'Catalogue of the Birds of the British Museum' (p. 21.)."

The excellent figure given represents a bird exactly like that in the Central Park Menagerie, when seen by me in December, 1878.

The Central Park specimen having recently died and been secured by the National Museum, the following account of its progressive changes in plumage may be of interest as deciding the status of *S. æquatorialis*:—

July 23, 1875.— Specimen received at the Central Park Menagerie, said to be at least three months old when captured. Plumage uniform snuff-brown, the head and neck similar, but darker, the bill blackish.

April 1, 1876.— Memorandum by Mr. Geo. N. Lawrence: "Condor, said to be 9 months [*i.e.*, 12 months] old, bill black; cere and naked sides of head grayish black; head sparsely covered with short downy feathers of a smoky black; plumage in general dark snuff-brown."

August 1877.— Memorandum by Mr. Lawrence: "No change, except the development of the ruff, which is colored like the back."

December, 1878.— No appreciable change in plumage.

February 10, 1880.— Under this date, Mr. W. A. Conklin, Superintendent of the Central Park Menagerie, wrote me as follows:—"The plumage remains still unchanged, except that the ruff about the neck is somewhat fuller, and has a little sprinkle of white through the down .... It has not increased since then [the date of its arrival at the Menagerie] either in size or weight. The bill is black at the base, the apical half ivory-white. Head bare; no wattles; iris dark brown."

February 23, 1880.— Memorandum by Mr. Lawrence: "The ruff is now more full, but no appearance of becoming white; underneath [the surface ?] the feathers [of the ruff ?] are whitish."

November 11, 1884.— The specimen to which the above remarks and memoranda appertain received in the flesh from Mr. Conklin, it having died a day or two previously. The plumage is now in all respects that of the adult common Condor (*Sarcorhamphus gryphus*), the general color being black, with white ruff, and grayish white or pale gray wing-markings. No 'comb,' but throat with a slight 'dewlap,' and lower part of foreneck with a small pendulous wattle. Iris dark hazel; neck dirty yellowish white, slightly tinged with dull purplish flesh-color, the head more purplish; bill white, black at base, and dusky on culmen; feet blackish. Length, 45.50 inches; extent of wings, 103.25 inches; weight 17 lbs., the specimen in excellent condition. By dissection the bird proved to be a female.

After carefully weighing all the testimony, it therefore seems very doubtful whether more than one species of Condor exists in South America. It is quite likely, however, that this species (*Sarcorhamphus gryphus*) varies in size or other characters in different parts of its range, and that therefore two or more geographical races or subspecies exist; but in all probability there does not exist in any museum sufficient material to determine this question.

At any rate, it would appear to be established beyond doubt that *Sarcorhamphus gryphus* is uniform brown when young, and that it wears this plumage until at least seven years old. It would seem, also, that the 'comb,' or erect wattle, peculiar to the male, is developed before the bird assumes the adult plumage, as is attested by the living specimen in the Amsterdam Zoölogical Garden, referred to by Mr. Sharpe.

WINTER MOUNTAIN NOTES FROM SOUTHERN ARIZONA.

BY W. E. D. SCOTT.

THE following record was made during a four days' visit to the highest point of Los Sierras de Santa Catalina, Pima County, Arizona, the time being from November 26 to 29, inclusive, 1884. The region is a dense pine and spruce forest, with here and there a sprinkling of poplars and sycamores, and a few evergreen oaks. The readers of 'The Auk' would doubtless have a more definite idea of the exact point, could they have looked down with me on Fort Lowell, which seemed a fairy encampment directly below the solitary hut where I bivouacked. It was real winter at this altitude—a little over 10,000 feet—with from two to six inches of snow on the ground, and ice in the brooks where the current was not too rapid; and the region presented a very marked contrast to that about Fort Lowell, and just the other side of Tucson, where the cottonwood trees waved in plain view as green as in June. The four days were of such clear sunshine and blue sky as to make one forget the winter on the ground, and only at night was the cold intense. Bird life was not represented by very many species, but the individual representation of some kept the woods a very lively solitude.

By far the greater number of birds were Nuthatches, and the Slender-billed Nuthatch (*Sitta carolinensis aculeata*) was ubiquitous, though now and then fairly overshadowed by numerous companies of the Pygmy Nuthatch (*Sitta pygmæa*). Once I heard a very familiar Titmouse note but did not see the maker; and this was the only hint of a Tit noticed during my visit.

Associated with flocks of the Mexican Bluebird (*Sialia mexicana*), which was, by the way, the only kind of Bluebird observed, was always to be found one and sometimes two representatives of the Olive Warbler (*Peucedramus olivaceus*). The Bluebirds were generally feeding on some insects in the tall pines, in flocks of from six to ten individuals. The Olive Warblers were on the best of terms with their blue friends, and as the Bluebirds were shy and restless they made it difficult to obtain or observe

very closely their smaller allies. I did not in these pine woods see the two species apart, and became at length so well aware of the intimacy that existed between them, that I would fire at any small bird passing high overhead in company with Bluebirds. They were chance shots, certainly, but the only two small birds obtained flying in this way with the Bluebirds were Olive Warblers. Presently I learned, too, that the Warblers had a call-note so like that of their associates as to be almost identical. It seemed to me only a clearer whistle of more silvery tone. During my stay I obtained six representatives of the Warbler—two adult males, two adult females, and two females of the year. Five of these birds were taken on November 26, before the Bluebirds had become very wary, and on the 28th the other was taken, as I have described, from a party of Bluebirds flying over. As near as can be estimated I was able to secure rather less than half of the Warblers I saw, for there seemed to be not more than fourteen noted, altogether.

Generally they preferred the largest branches of the pines when they alighted, though I took one not more than three feet from the ground in a small bush. Their movements while feeding or searching for food are very deliberate, though I noticed now and again certain motions when at the extremity of a bough that reminded me of a Kinglet or Titmouse. No song was noted save the call described. I think there can be little if any doubt that they are residents all the year, and certainly native residents of the pine woods of this region, for aside from the fact of their presence as recorded when winter had fairly set in, Mr. F. Stephens took a single male in February, 1880, in this same range of mountains, and at a point not very distant, though at a lower altitude, he tells me. (For further record of this individual, see Bull. Nutt. Orn. Club, Vol. VII, No. 3, July, 1882, p. 136.)

A number of Ruby-crowned Kinglets (*Regulus calendula*) were seen, and two adults, males, obtained, show a peculiar grayish cast about the green of the head and back that is much more apparent than in any eastern examples of this species that I have ever seen or taken.

The Fringillidæ that were observed, and which are given in the order of their comparative abundance, the most common heading the list, were Cassin's Finch (*Carpodacus cassini*),

Junco cinereus caniceps, *Junco cinereus*, *Pipilo maculatus megalonyx*, and four individuals of the Evening Grosbeak (*Hesperophona vespertina*). Unfortunately none of these last were secured, but the identification in life of so peculiar a species, and close at hand, is not difficult. They were feeding on small cones in a spruce tree, and were not at all shy, but my gun missing fire disturbed them and I was unable to find them again. The Oregon Snowbird (*Junco oregonus*), though abundant at a lower altitude, and observed in great numbers the day I ascended the mountain, and again on returning from the trip, was not met with in the pine woods, nor were any Crossbills observed.

Steller's Jay (*Cyanocitta stelleri macrolopha*), and the Raven (*Corvus corax carnivorus*) were the only Corvidæ noted. Neither were common, though the former was seen every day, but the latter only twice during my stay.

The Woodpeckers were represented by five species: Harris's Woodpecker (*Picus villosus harrisi*), the Brown-headed Woodpecker (*Sphyropicus thyroides*), the Nuchal Woodpecker (*S. varius nuchalis*), the California Woodpecker (*Melanerpes formicivorus bairdi*), and the Red-shafted Flicker (*Colaptes mexicanus*). The California was perhaps most common, though Harris's and the Brown-headed were nearly as abundant, and the others rare. The Brown-headed Woodpecker was represented almost entirely by females, of which I perhaps saw twenty or more, and not a quarter as many males. It is not improbable that this is about the winter habitat of the females of this species, and that most of the males winter still farther to the northward. Four species will conclude the list of birds absolutely noted at this point, though doubtless many were overlooked, or would be found during a more protracted visit. A single Sharp-shinned Hawk (*Accipter fuscus*) was taken, and two Red-tailed Hawks (*Buteo borealis*) were seen. The Band-tailed Pigeon (*Columba fasciata*) was not uncommon in small flocks and singly, and, judging from the tracks in the snow, Wild Turkeys were abundant, though only two females were seen, and none were taken.

VARIATIONS IN THE FORM OF THE BEAK, THAT TAKE PLACE DURING ITS GROWTH, IN THE SHORT-TAILED ALBATROSS (*DIOMEDEA BRACHYURA*).

BY DR. R. W. SHUFELDT, U. S. ARMY.

SEVERAL years ago when Dr. Bean of the Smithsonian Institution was collecting in various parts of Alaska, he succeeded in securing four heads in the flesh of the Short-tailed Albatross. These were brought back to Washington in alcohol, along with the rest of the excellent material that was gathered during these explorations in our far-off possessions. Last October, before I left Washington for my present field of research in New Mexico, Dr. Bean very kindly presented me with the entire series of the above-mentioned heads, to be used as I saw fit in some of my anatomical studies of the group.

Before parting with them, however, he invited my attention to the marked differences that existed in the form, as well as the relations of the horny parts that covered the osseous beak.

The four heads in question undoubtedly belonged to individuals of very different ages, ranging from a 'bird of the year' to an apparently full-grown adult.

The specimen from which the beak in figure 1 was drawn, has the plumage of the head a yellowish white all over, while

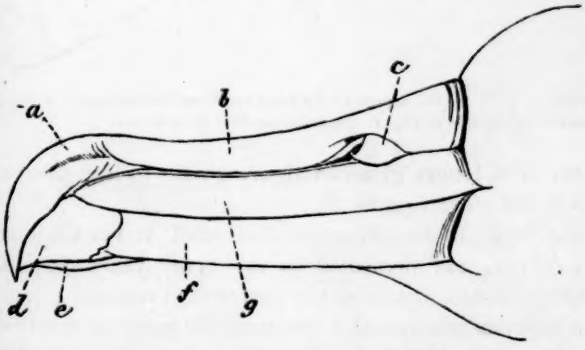

FIGURE 1. Left lateral view of the beak of *Diomedea brachyura*, adult. The letters direct attention to the various horny pieces that cover it. From nature, by John L. Ridgway and reduced one-half.

the head of the one from which figure 2 was taken has this color dashed here and there with pale brown.

In specimen No. 3 this brown becomes much deeper and is the prevailing color of the head, to the gular space and about the base of the superior mandible, in which localities it is of a dirty white. The last specimen has the plumage of the entire head a deep sooty brown, being somewhat paler in the parts where the dirty-white occurs in specimen No. 3. Of these four heads I take the specimen marked No. 1 in the figures to be the oldest, if not, as I have already said, a full-grown bird, while the others become younger and younger, as indicated by their numbers, No. 4 being the youngest of all.

The figures of these beaks were all drawn from the specimens by Mr. John L. Ridgway, a brother of the ornithologist. They are carefully and accurately done, as is all the work of this artist.

In figure 1 I have added the letters from *a* to *g* in order that we might have something to designate the parts by in referring

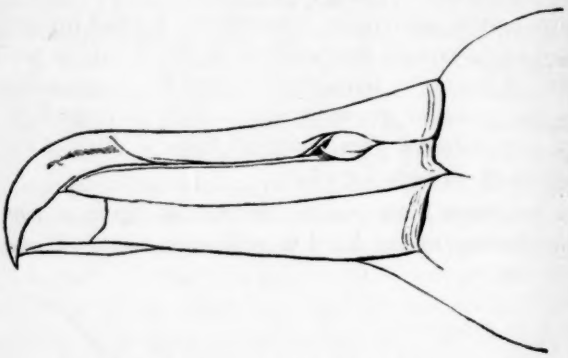

FIGURE 2. Left lateral aspect of the beak in *Diomedea brachyura*, a younger specimen than the one figured in Fig. 1. Reduced one-half from nature.

to them. The letters given in figure 1 refer to like pieces of the sheath in the other figures.

In the beak of an Albatross collected at the Cape of Good Hope, Africa, and presented to me many years ago, I find the little horny dome, covering the nostril and marked *c* in figure 1, to be a separate piece, and I presume the parts referred to by the other letters are likewise. It hardly seems possible, however, that any of these parts are ever moulted during the breeding sea-

son, a condition known to occur among the Alcidæ, as has been so well described through the admirable researches of L. Bureau, Stejneger, and others.

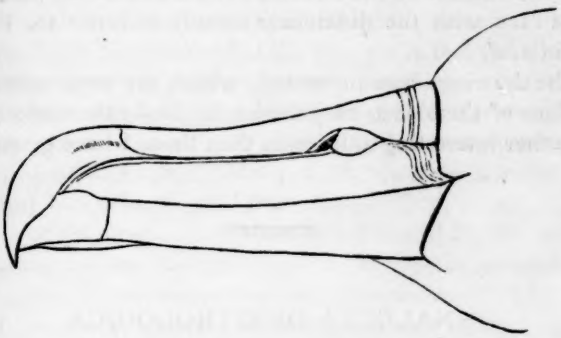

FIGURE 3. Left lateral view of the beak of *Diomedea brachyura*. A still younger specimen than No. 2. Reduced one-half from nature.

If we examine the beak of the adult Albatross shown in figure 1, it is at once noticeable that its general form differs very materially from the younger birds. This difference as a whole consists in a somewhat greater depth for the length of the beak as compared with the less matured individuals. The arch of the anterior extremity of the culmen formed by the piece marked *a* is considerably more convex in the adult than it is in figure 2, for instance, and the relation of this piece to the surrounding pieces, *b*, *d*, and *g*, is by no means exactly the same.

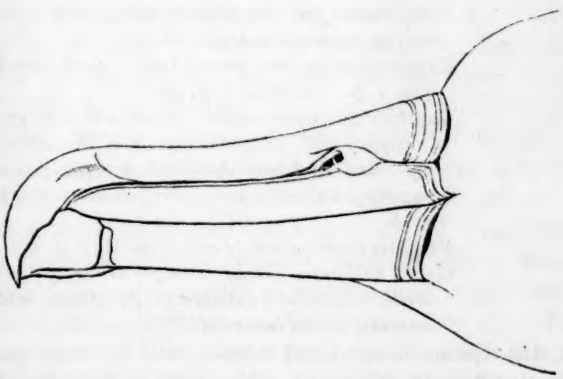

FIGURE 4. Left lateral aspect of the beak of *Diomedea brachyura*, the younger of the four shown in the figures. Reduced one-half from nature.

The piece marked *d* becomes relatively larger as the bird matures, while the piece *e* seems to vary both in form and length in the various specimens before me. We likewise notice that the forms assumed by the anterior extremities of the pieces *f* and *g* must vary with the differences already referred to, that take place in *a*, *d*, and *e*.

In the drawings here presented, which are such correct representations of the objects they depict, no doubt the reader will discover other interesting differences than those I have given above.

ANALECTA ORNITHOLOGICA.

Fifth Series.

BY LEONHARD STEJNEGER.

XXV. WHY *Chordeiles virginianus* AND NOT *Ch. popetue?*

IN order to answer this question I will first have to quote the description of the author who first established the binominal *Caprimulgus virginianus*. Gmelin gives the following account of the species (S. N., I, 1788, p. 1028):

"Virginianus. 3. C. fuscus, transversim griseo-fusco et hinc inde cinereo-varius, subtus ex rubescente albus transversim striatus, menti macula trigona alba, area oculorum et cervice aurantiis maculis varia.

Caprimulgus minor americanus. *Syst. nat.* XII. 1. *p.* 346. 1. β. *Kalm it.* 3. *p.* 93.

Caprimulgus virginianus. *Briss. av.* 2. *p.* 477. *n.* 3.

Whip-poor-will. *Catesb. Car.* 3. *t.* 16. *Edw. av.* 2. *t.* 63. *Buff. hist. nat. des ois.* 6. *p.* 534.

Longwinged Goatsucker. *Arct. Zool.* 2. *p.* 436. *n.* 337. *t.* 18.

Virginia Goatsucker. *Lath. Syn.* II. 2. *p.* 595. *n.* 6....

Genae *ex cinereo fuscae; remiges atrae, 5 primae circa medium,* rectrices *extimae prope apicem macula alba notatae;* pedes *incarnati.*"

This description, considered alone, will be seen to fit the Nighthawk (Ridgw., Nomencl., No. 357) very well. Particu-

larly decisive is the reference to the white wing- and tail-spots. It will also be remarked that bristles at the mouth are not mentioned at all. So far it is all right, and as this description is the basis of the oldest binominal, I think we might content ourselves with this result. It has been urged, however, that the references belong to the Whip-poor-will (R., No. 354), that Gmelin's species is a composite one, and, therefore, untenable. Let us then examine a little closer into the references given.

We will commence with the third of Gmelin's enumeration, "Whip-poor-will, *Catesb. Car.* 3. t. 16," because it is the oldest and the one which has caused the whole trouble.

Plate 16 of the Appendix of Catesby's 'Natural History of Carolina, Florida and the Bahama Islands' represents a Goatsucker which he calls '*Caprimulgus minor Americanus.*' The figure is one of the poorer pictures of that celebrated work, but may be said to represent the Nighthawk, on account of the white wing-spot, which is very recognizable. Above and below the bill are some long and fantastically arranged bristles, which has led to the belief that the *Antrostomus vociferus* was meant, the more so since Catesby in the text calls the bird 'Whip-poor-will.' The latter mistake is very excusable, for I have been told that the people in the localities in which both species occur generally confound them, and believe that the Nighthawk utters the sound which has given 'Whip-poor-will' its name. Concerning the bristles, we are justified in presuming that they are due to an intended improvement on the part of the artist. Catesby may have seen specimens of the *A. vociferus* with the strong bristles, and, confounding the two species, introduced the bristles into his drawing thinking that they were accidentally absent from the specimen he figured, for, inasmuch as the plate is inscribed "*M. Catesby ad viv. delin.*," it is not at all probable that the white wing-spot is a freak of his fancy. There is another point of importance in that drawing, namely, the length of the pointed wings, which reach considerably beyond the end of the tail, proportions particularly characteristic of the Nighthawk. We are, therefore, justified in saying that the figure in question is a rather poor representation of the so-called 'Nighthawk.'

The next reference in time is Edwards's Plate 63. That this figure represents the Nighthawk is beyond doubt, it being a very good picture of that bird. It may be remarked that he also calls

the bird "Caprimulgus minor *Americanus.* Whip-poor-will," thus proving that the identical inscription on Catesby's plate is no objection to our identification made above.

Then follows Linnæus's "Caprimulgus europæus β." This is originally (1758) based solely upon Catesby's and Edwards's figures; in the 12th edition he added the quotation of Kalm's 'Iter.' His reasons for making 'Caprimulgus minor americanus' a variety of the European Goatsucker he expresses in the following words: "Varietatem β. judico ex *macula alba alarum & rectricum*, ut in mare avis europeæ." Gmelin's citation of Linnæus's S. N., 12th edition, therefore, clearly belongs to the Nighthawk.

Brisson's "*Caprimulgus virginianus*," which is next in order, is based exclusively upon the two figures of Catesby and Edwards. With his usual acuteness, however, he at once saw that the picture made by the latter was the more accurate one of the two, and consequently he based his description mainly upon that, as he expressly remarks about the former, "une figure pas assez exacte," while of the latter he says, "une figure exacte." His description, therefore, unquestionably belongs to the Nighthawk, notwithstanding the fact that Catesby's drawing induced him to mention the long bristles.

Buffon's account (l. c.) is based upon the above-mentioned authors, and belongs where they belong. Moreover, he mentions especially "les cinq premières [pennes des ailes] marquées d'une tache blanche vers le milieu," and remarks: "M. Linnæus en fait une variété dans l'espèce Européenne; mais *il en diffère par la longueur de ses ailes.*"

"The longwinged Goatsucker" of Pennant (Arct. Zool. II, p. 436, No. 337) which has "primaries black, marked near the middle with a white bar," and of which the "wings, when closed, extend beyond the end of the tail," is easily identified by these characters alone as the Nighthawk. The accompanying figure does not belong there, and has evidently been, by some mistake, wrongfully inscribed.

The first one, since Catesby and Edwards, who seems to have had specimens before him, was Latham, referring, as he does, to the British Museum and the Leverian Museum. He describes his birds thus (*l.c.*):

"6. VIRGINIA G[oatsucker]. . . . dull brown, transversely variega- [*fuscus, transversim*

ted and blended with rufous brown, with here and there a mixture
griseo-fusco et hinc inde
of ash-colour and a little portion of gray on the wings: above the eyes
cinereo-varius *area oculorum*
on each side, and behind the neck, a few orange spots: under the eyes
et cervice aurantiis maculis varia; genae ex
cinereous brown: on the chin a white triangular spot.... beneath
cinereo fuscae; menti macula trigona alba subtus
reddish white, crossed with dusky streaks: quills dusky; the five first
ex rubescente albus transversim striatus; remiges atrae, 5 primae
marked about the middle with a spot of white, occupying both webs,
circa medium
except on the first, in which it is seen only on the inner: tail not unlike the quills; the two outer feathers marked with a spot of white near the
rectrices extimae prope apicem macula alba notatae;
end: legs flesh-colour."
pedes incarnati.]

This description allows of only one interpretation: it refers *solely* to the Nighthawk. From this Gmelin got his diagnosis and description, as the interlineation of his Latin translation in the text above conclusively proves, and we may add that his account of the habits, etc., is likewise only a translation of that given by Latham. Gmelin's name, consequently, is based exclusively upon specimens of the Nighthawk.

It may now be regarded as fairly proven that *Caprimulgus virginianus* Gmel. (1788) is the earliest and most correct name of the bird subsequently (1807) called *C. popetue* by Vieillot. I have enlarged considerably upon this question, not because I "*take a special delight in bringing forward*" these changes (*cf.* Ibis, 1884, p. 453), but because I want these deplorable changes of our ornithological nomenclature stopped; because I do not want to draw straws as to what name I am going to apply to the birds I treat of; because I find the '*Auctorum plurimorum*' principle utterly unreliable, as is well shown by the present example. Besides, I thought it useful to have the question indicated in the heading of the present article settled beyond even a shadow of doubt. That this is necessary will be understood from a cursory summary of the changes the systematic name of the Nighthawk has suffered under the hands of our most prominent ornithologists. It was called *virginianus* by Swainson and Richardson, Nutall, and Audubon; Bonaparte turned from *popetue* to *virginianus;* Baird, Ridgway,

Allen, and others have applied *popetue* consistently. Coues in the first editions of his 'Key' and the 'Check-list,' as also in the 'Birds of the North West,' uses *virginianus*, but in the second editions of the two former he adopted *popetue*.

The North American species and races should stand thus:

R. 357. **Chordeiles virginianus** (*Gm.*) *Sw.** NIGHTHAWK.
357*a*. **Chordeiles virginianus henryi** (*Cass.*) *Coues.* WESTERN NIGHTHAWK.
357*b*. **Chordeiles virginianus minor** (*Cab.*) *Coues.* CUBAN NIGHTHAWK.

XXVI. ON THE GENERIC NAMES OF THE PHALAROPES.

The genus *Phalaropus* was originally established by Brisson, and made by him to contain both the narrow billed species and the broad billed one. Like all of the earlier writers he omitted to indicate a type, simply for the reason that the usefulness or the necessity of such a thing was not understood at that time. In many cases it may be possible to say with some degree of probability which species the author would have given as type in the modern sense, if it had been the custom of his age to indicate it, but the confused nomenclature resulting from such proceedings is the best proof of the insufficiency of the method, and a clear rule to the effect that the first author dividing the genus has the power of designating the type of the restricted parts of it, has been found to be satisfactory in every respect.

Turning now to the particular case, intimated above, we find that Vieillot, and not Cuvier, as generally supposed, was the first to subdivide Brisson's genus *Phalaropus*. In his 'Analyse d'une nouvelle Ornithologie élémentaire' (Paris, 1816), Vieillot undertook the division in the following terms (p. 62):

"245. CRYMOPHILE, *Crymophilus*. *Tringa*, Linn. Gm. *Phalaropus*, Lath.

Bec un peu trigone a la base, sillonné en dessus, droit, à la point dilatée, arrondie et fléchie . . . .

Esp. Phalarope à festons dentelés, Buff.

246. PHALAROPE, *Phalaropus*, Briss. Lath. *Tringa*, Lin. Gm.

Bec droit, arrondi, grêle, pointu, un peu incliné vers le bout. . . .

Esp. Phalarope cendré, Buff."

* *Chordeiles virginianus* SWAINS. Faun. Bor. Am. II, p. 496 (1831).

It was not before the following year (1817) that Cuvier subdivided the same genus in a similar manner, retaining, however, the name *Phalaropus* for the group already named *Crymophilus* by Vieillot, and giving the name *Lobipes* to the latter's *Phalaropus*. The North American species should stand thus:

R. 563. **Crymophilus* fulicarius** (*Linn.*). RED PHALAROPE.

564. **Phalaropus lobatus** (*Linn.*). NORTHERN PHALAROPE.

565. **Phalaropus tricolor** (*Vieill.*). WILSON'S PHALAROPE.

XXVII. *Scops* PREOCCUPIED!

The following note has for its object to call attention to the fact that the generic term *Scops*, frequently applied to the Little Screech Owl and its allies, is preoccupied in ornithology.

In 1760 Brisson named the African Umbrette *Scopus*, a name which Brünnich, the well-known author of 'Ornithologia borealis,' twelve years afterwards emended into *Scops*. In 1772 he published a small octavo volume, called 'Zoologiæ Fundamenta,'† a kind of Synopsis of the Animal Kingdom, consisting of synoptical tables in the Latin and Danish languages, particularly prepared as a manual to be used by the students at his lectures. All the genera of birds known and recognized at that time are incorporated and characterized; a few new ones are established and some old ones renamed. To this book we owe the first recognition of the Great Auk as a separate genus, and the name it properly should bear, viz., *Plautus*. On p. 74 we find the Umbrette characterized as *Scops*, and that it is not a misprint or *lapsus calami* is evident from the same spelling of the word occurring on p. 70.

The first synonym of *Scops* Savigny is *Ephialtes* Keys. and Blas. (1840), which, however, is also preoccupied, having been employed by Schrank in 1802 for a hymenopterous insect.

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* κρυμός = ice, φιλέω = I love.

† M. Th. Brünnichii | Zoologiæ | fundamenta | Prælectionibus Academicis | Accomodata. | —Grunde | i † Dyrelæren. | —Hafniæ et Lipsiæ MDCCLXXII. | Apud Frider. Christ. Pelt. | — Litteris Godichianis. (1 vol. oct. 254 pp. Birds from p. 50 to p. 93.)

Next comes *Megascops* of Kaup, concerning the type of which authors seem to be at variance. The case, however, is plain enough. In 'Isis' for 1848, p. 769, Kaup enumerates five species under the subgenus *Megascops*, the first one being '*Sc. indica* Gmel.,' while *Sc. asio* is only mentioned as No. 4. But on p. 765, where he mentions the term for the first time, he writes "*Megascops* (*Scops asio*, etc.)," by the species in parenthesis explaining the subgeneric appellation, which may therefore safely be said to have *asio* for type. Besides, the two species mentioned are undoubtedly congeneric, so that the name is applicable whichever may be regarded as the type.

The North-American species will stand thus:

R. 402. —**Megascops*** **asio** (*Linn.*).
402*a*.—**Megascops asio floridanus** (*Ridgw.*).
402*b*.—**Megascops asio maccalli** (*Cass.*).
402*c*.—**Megascops asio maxwelliæ** (*Ridgw.*).
402*d*.—**Megascops asio kennicotti** (*Elliot*).
—**Megascops asio bendirei** (*Brewst.*).
403. —**Megascops trichopsis** (*Wagl.*).
404. —**Megascops flammeolus** (*Licht.*).

XXVIII. On Gyrfalcons.

In Scandinavia only two Gyrfalcons are known to occur, the common so-called 'Brown Gyrfalcon,' or the typical *Falco gyrfalco*, and the form with whitish black-streaked head, usually attributed to Iceland and South Greenland (*cf.* Collett, N. Mag. Natur. XXVI, 1881, p. 329). Both of these were known to Linnæus, who described the former as *F. gyrfalco*, the latter as *F. rusticolus*. The first of these names is not any longer a matter of dispute. The latter ought not be, for his diagnosis: "Falco cera palpebris pedibusque luteis, corpore cinereo alboque undulato, collari albo. *Habitat in* Svecia" is clear enough, and better than his diagnosis of *F. gyrfalco*. He seems not, however, to have recognized the white Gyrfalcon, which was well known to Brünnich. The latter describes, under the specific name of *islandus*, three different birds, which he considers "sine dubio varietates quas soli Daniæ Regi vendere

* Deriv. Gr. μέγας = great; σκώψ = a kind of Owl.

tenentur Islandi." The two first, his No. 7 and No. 8, are evidently only stages of the White Gyrfalcon; No. 9 is an equally undoubted description of the bird which we think Linnæus called *rusticolus*. It will thus be seen that Brünnich's species *F. islandus* is a compound one, embracing both the white and the dark species of Greenland and Iceland. The author who next treated of these birds from autopsy was Otto Fabricius, who in his celebrated 'Fauna Groenlandica,' published in 1780, applied the name *Falco islandus* to the white species—"Falco albus maculis cordatis nigricantibus, rectricibus albis nigro-fasciatis"—to which he expressly refers Brünnich's No. 8 as the young, and No. 7 as the old, while No. 9, the dark one, he without hesitation quotes as a synonym of his *F. rusticolus*. Fabricus, therefore, restricted the name *islandus* to the white species. To us who accept Brünnich's names the species must stand as

Falco islandus *Brünnich* as restricted by *Fabricius*,

while English authors—starting from the 12th edition—will have to call it

Falco islandus *Fabricius*, 1780.

It is a matter of regret that Gmelin when editing the Systema Naturalis eight years later overlooked Fabricius's† 'Fauna Groenlandica,' thus committing the blunder of applying Brünnich's *islandus* to No. 9, the dark one, while he treated No. 7 and No. 8, respectively, as var. β *albus* and var. γ *maculatus*, names occurring four pages earlier than his *Falco candicans* and *F. candicans* β *islandicus*, which this arch-compiler named from Brisson, not for a moment suspecting that he on an earlier page had given them other names! It would have been of very little consequence what Gmelin did if later authors had not perpetuated his blunder, though we may add at once that not all have done so. It is, perhaps, not possible to get up a *plurimorum auctorum* list, but the White Gyrfalcon (*Falco candicans* plur. auct.) may still be quoted as *Falco islandus*

† Seebohm, in his Hist. Brit. B. Eggs, quotes 'Faber' instead of Fabricius. Faber and Fabricius were two different persons!

Brünnich, 1764, or Fabricius, 1780 (nec Gmelin, 1788, nec auct. plur.), Latham, 1787 and 1790, Bechstein, Meyer* and Wolf, Temminck, Audubon, Swainson and Richardson, Gould, Holböll, etc. The reinstatement of the proper name may cause some inconvenience in the beginning, and somebody may ask: Must we always be correct? I will answer that we must be correct in this case as in others (*cf. Sylvia salicaria*, *Sylvia rufa*, *Sterna hirundo*, and *Stercorarius parasiticus*), and that the correct name in time will be as well understood as *Pendulinus* (intellige *Xanthornus*), *Scops giu*, *Otus accipitrinus*, *Lanius auriculatus* or *pomeranus*, or, as I should say, *Euneoctonus senator*, *Accentor collaris*, *Phylloscopus*, *collybita*, *Anthus trivialis*, *Gallinago cœlestis*, *Tringa striata*, *Totanus canescens*, *Ardea ralloides*, *Bulweria colombina* (intellige *B. bulwerii*), *Diomedea albatrus* (intellige *D. brachyura* plur. auct.), *Balearica chrysopelargus*, *Œdicnemus illyricus*, etc., etc. There are two principles by which the question of the names can be settled, the principle of priority or the auctorum-plurimorum-principle. As to these I will make Howard Saunder's words mine, only substituting the name *Falco islandus* for that of *Lanius pomeranus:* "The *earliest unimpeachable* description of the White Falcon is that of *Falco islandus*, Brünnich or Fabricius; and by the existing rules we must accept it, and get used to it as soon as possible. Those who refuse to do this, and adopt names merely because they have been sanctioned by the number or the authoritative weight of employers, will certainly go further and probably fare worse." I will add, however, that the principle of priority must be carried out regardless of consequences and not in the usual slipshod manner, or else it is worse than the antagonistic system; it must also be carried out without delay, that "we may get used to the new names as soon as possible," or else these changes will go on slowly but in all future. So much for those who profess to believe that I "take a special delight in bringing forward wholesale changes of familiar names."

Having examined the large material (about 75 specimens) of

* Meyer seems to have been the first one to suspect the true relationship between *gyrfalco* and *islandus*, for in his "Vög. Liv- und Esthl." (1815) p. 20, he says: "In den Taschenbuch der deutschen Vögelkunde habe ich *Falco Gyrfalco* als eine Abart des *F. islandus* aufgeführt, allein ich bin doch jetzt geneigt, ihn eher für eine eigene Art zu halten."

Gyrfalcons in the U. S. National Museum, in company with Mr. R. Ridgway, we came to the following conclusions:

1. There are two distinct species of Gyrfalcons, the 'white,' and the 'brown.'

2. The latter is divisible into three geographical races, the typical (Scandinavian) form, the Iceland-Greenland form, and the Labrador form.

3. We are, at present, unable to appreciate the distinction of the so-called *F. holboelli* and *F. sacer* Forst.

I therefore propose that the North American forms be recognized as

R. 412. **Falco islandus** *Brünn.* WHITE GYRFALCON.
412*a*. **Falco rusticolus** *Linn.* GRAY GYRFALCON.
412*b*. **Falco rusticolus gyrfalco** (*Linn.*). GYRFALCON.
412*c*. **Falco rusticolus obsoletus** (*Gm.*). LABRADOR GYRFALCON.

The following synonyms of No. 412 and 412 *a* may be found useful by those wishing to go further into details:

412. **Falco islandus** *Brünn.* WHITE GYRFALCON.

1764.—*Falco islandus* BRÜNNICH, Orn. Bor. p. 2, ns. 7 & 8.— FABRICIUS, Fauna Groenl. p. 58 (1780).— LATHAM, Synops. Suppl. I, p. 282, (1787).—BECHSTEIN, Orn. Taschenb. p. 40 (1803).
1783.—*Falco gyrfalco* BODDAERT, Tabl. Pl-Enl. p. 26) (nec LINN.).
1786.—*Falco rusticolus* MOHR, Islandsk Naturh. p. 19 (part.).
1788.—*Falco islandus*, β *albus* GMELIN, Syst. Nat. I, p. 271.
1788.—*Falco islandus* γ *maculatus* GMELIN, Syst. Nat. I, p. 271.
1788.—*Falco candicans* GMELIN, Syst. Nat. I, p. 275.
1790.—*Falco islandicus* LATHAM, Ind. Orn. I, p. 32.— MEY. & WOLF, Tasch. V. Deutschl. I, p. 65 (1810). TEMM., Man. d'Orn. 2 ed. p. 17 (1820). — SW. & RICH. Fauna Bor. Am. II, p. 27 (1831).—AUDUB. B. Am. (pl. cccIxvi) (1836).—GOULD, B. of Eur. I (pl. 19) (1837).— AUDUB. B. Am. 8vo ed. I, p. 81 (1839).— HOLBOELL, Faun. Grönl. (p. 18) (1854).
1806.—*Falco groenlandicus* TURTON, Gen. Syst. Nat. I (p. 147) (nec DAUDIN, 1800).—HANCOCK, Ann. N. H. II, p. 249 (1839).
1854.—*Falco islandicus candicans* HOLBOELL, Zeitschr. Ges. Naturw. III (p. 426).
1860.—*Falco gyrfalco* var. *candicans* SCHRENCK, Reis. Amurl. I, p. 228.
1874.—*Hierofalco holboelli* SHARPE, Cat. B. Brit. Mus. I, pl xiii, right-hand figure.

412 *a*. **Falco rusticolus** *Linn.* GRAY GYRFALCON.

1758.—*Falco rusticolus* LINN. S. N. 10 ed. I, p. 88.—*Id.*, S. N. 12 ed. p. 125 (1766).—FABRICIUS, Fauna Groenl. p. 55 (1780).—MOHR, Islandsk Naturh. p. 19 (part.) (1786).—GMELIN, Syst. Nat. I, p. 268 (1788).—LATHAM, Ind. Orn. I, p. 28 (1790).

1764.—*Falco islandus* BRÜNNICH, Orn. Bor. p. 2, No. 9.—GMELIN, Syst. Nat. I, p. 271.

1776.—*Falco islandus fuscus* MÜLLER, Prod. Zool. Dan. (p. 73 and pag. viii, fide Fabr.).

1780.—*Falco fuscus* FABRICIUS, Fauna Groenl. p 56.

1783.—*Falco gyrfalco* BODDAERT, Tabl. Pl. Enl. p. 13 (nec LINN.).

1788.—*Falco candicans* β *islandicus* GMELIN, Syst. Nat. I, p. 275.

1800.—*Falco islandicus* DAUDIN, Tr. d'Orn. II, p. 100 (nec LATHAM).

1800.—*Falco groenlandicus* DAUDIN, Tr. d'Orn. II, p. 107 (nec HANC.).—BREHM, Isis, 1826, p. 990.

1854.—*Falco arcticus* HOLBOELL, Zeitschr. Ges. Naturw. III (p. 426) (nec. *F. communis* μ *arcticus* GMEL. 1788).

1862.—*Falco gyrfalco groenlandicus* SCHLEGEL, Mus. P. B. Falc. p. 13.

1862.—*Falco gyrfalco islandicus* SCHLEGEL, Mus. P. B. Falc. p. 14.

1873.—*Falco holboelli* SHARPE, P. Z. S. 1873, p. 415.

1883.—{ *Falco gyrfalco candicans* / *Falco candicans gyrfalco* } SEEBOHM, Brit. B. Eggs, I, p. 16.

1884.—*Hierofalco islandus* a *holboelli* GURNEY, Diurn. B. Prey. p. 111.

SMITHSONIAN INSTITUTION,
Washington, D. C., Feb. 12, 1885.

SUPPLEMENTARY NOTES ON THE ORNITHOLOGY OF CHESTER COUNTY, SOUTH CAROLINA.

BY LEVERETT M. LOOMIS.

THE writer, in continuing his notes on the birds of Chester County, South Carolina, would express his great indebtedness to the late Dr. T. M. Brewer, not only for the careful revision of his former work, but for many very valuable suggestions in his studies of the ornithology of this region.

Since the publication of the 'Partial List,'* thirty-eight species and two subspecies have been added to those already

* Bull. Nutt. Ornith. Club, Vol. IV, No. 4, pp. 209-218, Oct. 1879.

ascertained to occur in this locality. These, together with further data as to the abundance and period of residence of others previously recorded, are incorporated in the subjoined notes.*

The nomenclature and arrangement followed is that of Dr. Coues's 'Key to North American Birds' (second edition) and the same author's 'Check List and Lexicon.'

22. **Eremophila alpestris.** HORNED LARK. — The following tabulation exhibits the comparative abundance of this species during six winters:

1876-77 (severe). Very abundant.
1877-78 (mild). Rather common.
1878-79 (medium). One small flock.
1879-80 (medium). Occasional.
1880-81 (severe). Very abundant.
1881-82 (mild). None observed.

During the unusually inclement weather of January, 1884, I was constantly on the lookout for it, but only one small flock was noted, and that after the snow had disappeared. Its absence, in a season apparently so favorable for its appearance, is doubtless to be accounted for by the fact that the protracted cold wave came from the northwest. During the stay here, the grain fields, cotton lands, the last year's stubble, and other sparsely grassed tracts are chosen resorts.

50. **Iridoprocne bicolor.** WHITE-BELLIED SWALLOW. — Occurs quite commonly during the migrations. Most numerous in the vicinity of mill-ponds and other extended bodies of water.

65. **Melospiza palustris.** SWAMP SONG SPARROW.—A common winter resident, especially abundant during its passage. Tenants the undergrowth bordering streams, ponds, and swampy meadows.

76. **Dolichonyx oryzivorus.** BOBOLINK.—Migrant only; in spring abundant in large flocks foraging in the ripening oat-fields; in fall common, singly or in small groups; the grain fields, overgrown with rag-weeds (*Ambrosia artemisiæfolia*), and the bottom lands are resorted to. Arrives about the first of May and remains a couple of weeks. Earliest autumnal record, August 26; latest, October 15.

83. **Quiscalus purpureus.** PURPLE GRACKLE.—Winter; irregular; very abundant about the middle of February, when the species is migrating northward. Often associated in great droves with Red-wings, Cowbirds, and Rusty Grackles. A few breed.

108. **Asio accipitrinus.** SHORT-EARED OWL; MARSH OWL.—Rather common late in autumn and during winter. Frequents old broom-sedge fields. Have failed to determine its presence during the breeding season.

109. **Strix nebulosa.** BARRED OWL.—Common resident.

127. **Totanus flavipes.** LESSER TELLTALE; YELLOW-SHANKS.—Migratory; not very common.

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* Nos. 22-135 relate to the former 'Partial List'; Nos. 141-180 are additional.

131. **Ardea herodias.** GREAT BLUE HERON; 'BIG BLUE CRANE.'—A constant resident, but most abundant through the summer.

135. **Porzana carolina.** CAROLINA RAIL. 'ORTOLAN.'—Observed only during the migration. Have found it quite common in swampy meadows. Not easily flushed; the mowers sometimes cut the grass over one before it can be made to take wing.

141. **Turdus ustulatus aliciæ.** GRAY-CHEEKED THRUSH.—Transient visitant. Apparently not common.

142. **Telmatodytes palustris.** LONG-BILLED MARSH WREN.—Chiefly spring and autumn. Rather common. A denizen of the bottoms.

143. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—An individual was shot, September 18, 1880, in a little depression along the side of a railroad embankment. This spot, about half an acre, becomes boggy during wet weather, and is grown over with marsh grass and scrubby willows.

144. **Helminthophaga peregrina.** TENNESSEE WARBLER.—Only one instance of its capture, September 25, 1879.

145. **Dendrœca palmarum hypochrysea.** YELLOW-BELLIED RED-POLL WARBLER.—Both subspecies (*palmarum et hypochrysea*) are found through the winter, but neither is very common. During the migration the species is abundant — variety *palmarum* predominating. Inhabits cotton fields, weedy lands, and old fence rows.

146. **Myiodioctes mitratus.** HOODED FLYCATCHING WARBLER.—A single specimen taken September 25, 1879.

147. **Passer domesticus.** THE SPARROW; PHILIP SPARROW; 'ENGLISH SPARROW.'—This aggressive little foreigner has become firmly established in the town of Chester, especially in the business portions. The colony doubtless descended from the half dozen brought here from New York, during the summer of 1873, by the late Dr. A. P. Wylie, and set at liberty in his grounds.

148. **Centrophanes lapponicus.** LAPLAND LONGSPUR.—A single straggler, Jan. 1, 1881, evidently driven southward by the unusual severity of the season. (Previously recorded in Bull. Nutt. Orn. Club, Vol. VII, p. 54.)

149. **Centrophanes pictus.** PAINTED LONGSPUR.—One example, December 1, 1880. (For further record, see Bull. Nutt. Orn. Club, Vol. VI, pp. 115, 116.)

150. **Coturniculus henslowi.** HENSLOW'S GRASSHOPPER SPARROW.—A tolerably common migrant, appearing early in spring and lingering late in autumn. In localities where I find *passerinus* in summer and *lecontii* in winter, I look confidently for *henslowi* during the migration. It is by far the least distrustful of any of the birds of my acquaintance. If by chance it happens to be in an open space where the grass affords no concealment, it will permit the intruder to advance within a very few feet before running away — only taking flight when forced to do so.

151. **Coturniculus lecontii.** LECONTE'S GRASSHOPPER SPARROW; LE CONTE'S BUNTING.—A common winter inhabitant, in certain localities, of

neglected 'old fields.' This Sparrow displays a very marked preference for dry ground. Nowhere is this more apparent than in the 'black-jack' fields of broom-sedge, which become somewhat boggy after protracted rains. At such times the level tracts are deserted for the gentle declivities, or, if these are wanting, for some more congenial locality, while in ordinary showers they escape from the dense grass, saturated with water, to the thinner growth of the lighter soils. When under the shelter of the thick sedge, few birds are more difficult to get on wing, as they allow themselves to be nearly trod upon before removing. On one occasion a bird rose so near me it became entangled in my shooting coat. Again, under cover, they are still more difficult to start; although the spot be carefully noted and the ground thoroughly tramped over. In my earlier experiences I was often completely puzzled, but later observation revealed uniformity in their movements. Their most common way of escape is to lie still until you have passed, then suddenly jumping up from behind, dart off to one side. An assistant, by watching this manœuvre, greatly facilitates their capture. In one instance a second ally, a keen-nosed setter, was found useful, doing effective service when all efforts had proved unavailing. Again, as the chance may be, they will steal away in the thick sedge, or fly off through the open weeds. Briers and tall swamp grass are ever resorted to for protection. To gain the latter they will fly directly by the collector, if he happens to cut off the retreat, and when once under this friendly shelter, no amount of thrashing will bring them out. Sometimes they take to bushes and saplings, beginning at the lower limbs and hopping upward. One specimen was shot about ten feet above the ground. When not concealed, but in short grass, they are very tame, allowing one to approach within a few feet, and then running off a little way and stopping to look back. Their flight is low, and usually feeble and unprotracted, but under repeated molestations it becomes rapid and prolonged. In one instance a bush some six feet in height was cleared.

During their sojourn here they become very fat. The stomachs of birds examined through the winter contained several kinds of small seeds and fine gravel.

In certain specimens before me, secured during November, December, and January, narrow streaks extend in a band, about half an inch in width, across the jugulum. These markings are also continued toward the bill, forming noticeable maxillary lines.

The measurements of fifty-four examples, taken in the flesh, are as follows: —

	Length.		Extent.		Wing.		Tail.	
	mm.	in.	mm.	in.	mm.	in.	mm.	in.
Maximum	139.7	5.50	180.8	7.12	52.3	2.06	57.1	2.25
Minimum	130.8	5.15	175.2	6.90	49.0	1.93	52.3	2.06
Average	127.0	5.00	168.1	6.62	47.4	1.87	47.4	1.87

In five instances the wing and tail were found equal, but in no case did the length of the wing exceed that of the tail. (For original South Carolina record, see Bull. Nutt. Orn. Club, Vol. VII, Jan., 1882, pp. 54, 55.)

152. **Spiza americana.** BLACK-THROATED BUNTING.—In certain partially cleared grain fields around the town of Chester, this bird is a common summer resident.

158. **Zamelodia ludoviciana.** ROSE-BREASTED SONG GROSBEAK.—During the migration. Not very common. Found only on high ground, especially heavily-timbered 'ridges.'

154. **Xanthocephalus icterocephalus.** YELLOW-HEADED BLACKBIRD.—An adult male of this western species was captured at Chester C. H., April 18, 1884. (Previously noted in 'The Auk,' Vol. I, p. 293.)

155. **Aluco flammeus pratincola.** BARN OWL; 'WHITE OWL.'—Rather common during the summer season. Said to be a permanent resident.

156. **Asio wilsonianus.** AMERICAN LONG-EARED OWL.—Winter. Moderately common. Not known to breed.

257. **Circus cyaneus hudsonius.** AMERICAN MARSH HAWK, or HARRIER; BLUE HAWK; 'OLD FIELD HAWK'; 'RABBIT HAWK.'—Very common in the winter, but has wholly escaped observation during the breeding season.

158. **Elanoides forficatus.** SWALLOW-TAILED KITE; 'FORK-TAILED HAWK.'—Summer. Rare. Said to have been much more abundant before the extensive deforestation of the country.

159. **Haliaëtus leucocephalus.** WHITE-HEADED SEA EAGLE; 'BALD EAGLE'; 'BIRD OF WASHINGTON.'—Occasionally seen during the vernal migration.

160. **Pandion haliaëtus.** FISH HAWK; OSPREY.—Principally along the Broad and Catawba Rivers. One example from the water-shed, near Chester C. H.

161. **Lobipes hyperboreus.** NORTHERN PHALAROPE; RED-NECKED PHALAROPE.—One specimen, May 17, 1880, from a mill-pond near the town of Chester. (See Bull. Nutt. Orn. Club, Vol. V, p. 242.)

162. **Actodromas minutilla.** LEAST SANDPIPER.—Occurs during both migrations, but does not appear to be at all common.

163. **Totanus melanoleucus.** GREATER TELL-TALE.—Have met with this species but once. April 21, 1880, a single individual was shot, from a flock of seven, on the margin of a little mill-pond.

164. **Herodias egretta.** GREAT WHITE EGRET; WHITE HERON; 'BIG WHITE CRANE.'—Summer. Not very common, chiefly confined to the rivers. I have only one specimen in my cabinet from the dividing-ridge; a female, young-of-the-year, obtained July 12, 1881, in the suburbs of the town of Chester.

165. **Nyctiardea grisea nævia.** BLACK-CROWNED NIGHT HERON; QUA-BIRD; SQUAWK.—An immature female of this Heron was secured August 28, 1881, on a creek near the town.

166. **Rallus virginianus.** VIRGINIA RAIL.—Known only as a migrant. Frequents swampy meadows overgrown with tall grass.

167. **Gallinula galeata.** COMMON GALLINULE; FLORIDA GALLINULE; RED-BILLED MUD-HEN.—An adult male bird was taken, on the grassy banks of a small mill-pond, May 19, 1884.

168. **Cygnus columbianus.** COMMON AMERICAN SWAN; WHISTLING SWAN.—Winter visitant. Not common.

169. **Bernicla canadensis.** CANADA GOOSE; COMMON WILD GOOSE.—Winter. Common. Mainly restricted to the Broad and Catawba.

170. **Dafila acuta.** PIN-TAIL DUCK; SPRIG-TAIL.—Only in a single instance, March 12, 1883, have I met with this species.

171. **Querquedula carolinensis.** AMERICAN GREEN-WINGED TEAL.—Winter visitor. Tolerably common.

172. **Spatula clypeata.** SHOVELLER DUCK; BROAD-BILL.—Winter, but particularly spring and fall. Not uncommon.

173. **Aix sponsa.** WOOD DUCK; SUMMER DUCK; 'THE BRIDE.'—Permanent resident. Breeds. Individuals have been seen during June in a little carp pond in the town. Several crowded tenement houses near by make the situation a very exposed one.

174. **Fuligula affinis.** LESSER SCAUP DUCK; LITTLE BLACK-HEAD.—Of regular occurrence in winter; but not abundant.

175. **Fuligula collaris.** RING-NECK DUCK. Winter sojourner. Rather numerous. Specimen taken May 7.

176. **Fuligula ferina americana.** RED-HEAD; AMERICAN POCHARD.—One case, March 1, 1883.

177. **Clangula albeola.** BUFFLE-HEAD; BUTTER-BALL; SPIRIT-DUCK; DIPPER.—Frequently taken during winter.

178. **Mergus cucullatus.** HOODED MERGANSER.—Winter resident. Plentiful. I am not aware that any remain during the breeding season in this immediate locality.

179. **Rhynchops nigra.** BLACK SKIMMER.—A female bird-of-the-year of this maritime species was taken, Sept. 10, 1882, in the town of Chester. During the morning, and on the previous day, there had been a heavy easterly gale, which evidently had driven it in from the coast; the nearest point, as the birds fly, Long Bay, Georgetown County, being about one hundred and fifty miles distant.

180. **Podicipes cornutus.** HORNED GREBE.—Noted merely on one occasion, March 4, 1880, when a specimen was secured.

THE ROCK PTARMIGAN OF NEWFOUNDLAND.

BY WILLIAM BREWSTER.

IN the summer of 1883 Mr. George O. Welch, of Lynn, Mass., collected a number of Rock Ptarmigan on Newfoundland. The series showed little variation, aside from that dependant on

age and season, and supposing them to be merely our common *L. rupestris*, with the summer plumage of which I was then unfamiliar, I bought only a single pair for my collection. It turns out, however, that they are not only distinct from *rupestris*, but very different from any other known form. As there is good evidence that their habitat is strictly isolated, intergradation with any of their allies is so improbable that I have thought it best to describe the bird as a full species, which I name after the collector of my types.

Lagopus welchi, nov. spec.

SP. CHAR.—♂ *adult, summer plumage* (No. 8246, Coll. W. B. Newfoundland, June 25, 1883. George O. Welch). Throat, wings (except inner secondaries), legs, and central portions of the body below from the breast to the crissum, white; jugulum, præpectus and sides dark brownish-gray; entire upper parts still darker gray, many of the feathers having black centres; all the feathers of the dark areas of the body, both above and below, tipped with white and crossed by numerous fine, wavy, more or less broken lines of white, grayish-white, and grayish-ochraceous; feathers of the head, neck, and sides more broadly tipped and barred, giving these parts a lighter appearance; tail uniform deep grayish-plumbeous with narrow spaces of concealed white at the bases of all the feathers and a rather broad white tipping on the central pair; upper tail-coverts like the back; under coverts plumbeous tipped with white; a broad, conspicuous, black loral stripe; bill and claws black. Wing, 7.48; tail, 4.95; tarsus, 1.40; culmen from base, .97; culmen from nostril, .40.

Adult ♀ (No. 8248, Coll. W. B. Newfoundland, May 19, 1883. George O. Welch). Similar, but lacking the black loral stripe, and of generally lighter color; the transverse lines broader, whiter, and in places yellower, those of the breast and under tail-coverts being clear but pale orange-yellow. The shafts of the primaries, also, are brown instead of white, as in the ♂. Wing, 6.98; tail, 4.15; tarsus, 1.50; culmen from base, .85; culmen from nostril, .42.

Habitat:—Newfoundland.

The colors in the male of this Ptarmigan are confused and blended to such a degree that a detailed description, however carefully drawn, fails to do them justice. The general effect is that of a dark, grayish-plumbeous bird (colored not unlike the Oregon form of the Dusky Grouse), plentifully besprinkled with fine dots of 'pepper-and-salt color.' Dr. Stejneger, who has very kindly compared both specimens with the extensive material in the National Museum, writes me as follows regarding them:

"Of all the specimens in the National Museum no American ones show even an approximation toward these. The nearest approach is the *female* of the Greenland and Cumberland Gulf form, *reinhardtii*, but the gray is even less tinged with yellowish than in the latter. Nearer in color come our specimens of the European *mutus* and its forms, but not even the Scandinavian specimens have so much gray in their early plumage, the Newfoundland bird being darker; besides, the amount of white at the *base* of the external rectrices is also very small. This character is of rather small account because of its variability (according to age?), but I have found that on an *average* it may be regarded as of some value in large series. From both European forms—showing that it belongs to the *rupestris* type—the Newfoundland bird may be easily distinguished in the præstival plumage by the dense barring on the præpectus. With the Pacific Island forms it hardly needs comparison. It lacks the pure vermiculation of both *athkensis* and *nelsoni* in the corresponding plumage, while the latter and *ridgwayi* are the direct opposites of the Newfoundland birds as far as general color is concerned, they being the two extremes on the color-scale, *ridgwayi* being deep umber-brown — nearly black — without traces of gray.

"I therefore conclude that your Newfoundland *rupestris* is distinct, and, judging from the material, comparatively very strongly so. Should the characters prove as stable as they have in *ridgwayi*, of which I have just received additional material, it should undoubtedly stand as a species, and I think it is safest to establish the form as a binomial until further material should prove intergradation.

"The tendency to dark primaries, even in May, is an interesting parallel to *alleni!*"

According to Mr. Welch these Ptarmigan are numerous in Newfoundland, where they are strictly confined to the bleak sides and summits of rocky hills and mountains in the interior. Unlike the Willow Grouse of that island, which in winter wander long distances, and frequently cross the Gulf to Labrador, the Rock Ptarmigan are very local, and for the most part spend their lives on or near the hills where they are reared.

ADDITIONAL NOTES ON SOME BIRDS COLLECTED IN ARIZONA AND THE ADJOINING PROVINCE OF SONORA, MEXICO, BY MR. F. STEPHENS IN 1884; WITH A DESCRIPTION OF A NEW SPECIES OF *ORTYX*.

BY WILLIAM BREWSTER.

In the last number of 'The Auk'* I announced several additions to our bird-fauna made by Mr. Stevens in Arizona during the collecting season of 1884. The following notes embrace what I have to add on the subject. Late in the summer Mr. Stephens crossed the boundary into Mexico, traversing the Province of Sonora in a south-westerly direction to Port† Lobos, on the Gulf of California. As he has kindly promised a detailed account of this trip for publication in 'The Auk,' I shall mention here only a few of its more important results, especially such as have a bearing on our fauna, either by extending the known range of Arizona birds southward, or that of Mexican birds northward.

Harporhynchus curvirostris palmeri *Ridgw.* PALMER'S THRASHER.— An adult male in worn breeding plumage, taken at Altar, Sonora, Mexico, Aug 14, seems to be perfectly typical of this form, which, if I am not mistaken, has not been previously found south of the United States.

Haporhynchus lecontii *Bonap.* LECONTE'S THRASHER. — The occurrence of this species well within the boundary of Mexico is attested by four specimens taken about fifteen miles inland from Port Lobos. These birds are in a plumage unlike any that I have previously seen. The upper parts are deep ashy-, almost bluish-, drab, scarcely, if at all, tinged with brown or yellow. The wings are nearly concolor with the back, the tail much darker, in fact plumbeous-brown. The throat is white, in decided contrast with the breast and sides, which are nearly as dark as the back and of somewhat the same color, but tinged with ochrey. The abdominal region is brownish-white; the crissum, under tail-coverts, and flanks are strongly rusty.

Three of these specimens were shot Aug. 19; the fourth Aug. 21. Mr. Stephens is firm in the belief that they represent a form sub-specifically distinct from that of Arizona and California. This, however, seems to me improbable, from the fact that they all have more or less extensive patches of pallid, sand-colored feathers, which match perfectly those of the summer plumage of *H. lecontii* (either adults or young in first plumage). As these pallid feathers are clearly the remnants of a plumage

* Vol. II, No. 1, Jan. 1885, pp. 84, 85.

† So spelled on the labels of his specimens. Possibly Point, or Cape, Lobos!

which must have been moulted only a short time before the birds in question were killed, it would seem most reasonable to assume that the latter are simply Leconte's Thrashers in fresh autumnal dress, a condition which does not seem to have been previously examined.

I take this opportunity of describing another hitherto unknown plumage of *lecontii*.

Juv., first plumage (♀ No. 894, F. S., Aqua Caliente, California, March 28, 1884. Coll. F. Stephens). Of the same general pallid sandy-brown as the adult, but with the ochraceous of the anal region and crissum paler, the upper tail-coverts brownish-rusty, the wing-feathers (but not their coverts) delicate pearl-gray tipped with light brown, the tail dark plumbeous-brown, and the dusky loral patch and malar stripe rather more conspicuous than in the old bird. There is no indication of other dark spots or streaks anywhere either above or beneath. This bird was evidently just from the nest when taken, as its wings and tail are not fully grown.

Although Mr. Ridgway has expressed* his inability to verify certain supposed peculiarities in the bill of this species, to which I once called attention,† I have found them nearly constant in the dozen or more specimens that have since passed through my hands.

Certhia familiaris mexicana (*Gloger*) *Ridgw.* MEXICAN CREEPER.—Two Creepers, an adult male and female, taken in the Santa Rita Mts., July 5, are nearly, if not quite, typical examples of this strongly characterized subspecies, which was added to our fauna by Mr. Stevens in 1881.

Dendrœca nigrescens (*Towns.*) *Baird.* BLACK-THROATED GRAY WARBLER.—*Juv., first plumage* (♀ No. 2072, Santa Rita Mts., July 1). Above brownish-ashy, somewhat plumbeous on the crown; below ashy-white, the throat dark ashy, the breast and sides sprinkled with fine, obscure spots of dull black. The white stripes on the sides of the head are well-defined but the lores are solidly black, lacking the yellow spot seen in the adult male.

Vireo huttoni stephensi *Brews.* STEPHENS'S VIREO.—*Juv., first plumage* (No. 2161, Santa Rita Mts., July 9). Above brownish-ashy tinged with olive on the back, the wing- and tail-feathers edged with greenish, the wing-coverts tipped with ochraceous; below ashy-white washed faintly with yellowish posteriorly.

Vireo pusillus *Coues.* LEAST VIREO.—*Juv., autumnal plumage* (♀ No. 2501, Camp Lowell, Aug. 11). Very similar to the adult, but paler and greener above, with a decided greenish edging on the wing- and tail-feathers; the under parts rather purer white.

Pyranga hepatica *Swains.* LIVER-COLORED TANAGER.—*Juv., first plumage* (♀ No. 2163, Santa Rita Mts., July 9). Above dull yellowish-green, brightest on the crown and tail, each feather with a broad shaft-stripe of dark brown; below sulphur yellow, more or less tinged with

* Proc. U. S. Nat. Mus., Vol. V, p. 45.

† Bull. N. O. C., Vol. VI, No. 2, April, 1881, p. 67.

green, the feathers everywhere — except on the crissum and under tail-coverts, which are immaculate—streaked centrally with dull black.

Pyranga æstiva cooperi *Ridgw.* COOPER'S TANAGER.—*Juv., first plumage* (♀ No. 2500, Camp Lowell, Aug. 11). Above dull brownish-ochrey; below brownish or ashy white; the feathers of the crown and back streaked centrally with dark brown, those of the breast aud abdomen with dull black. This specimen is a little past the true first plumage, patches of the autumnal feathering having already appeared in places.

The adult male of this subspecies, as shown by a specimen taken Sept. 1 at Tucson, does not have a distinctive autumnal plumage, the red at that season being quite pure and, indeed, apparently even deeper and rosier than in spring. In this respect the bird resembles its near relative *P. æstiva* and differs from *P. rubra*, the adult male of which in autumn assumes a green livery scarcely distinguishable from that of the female.

Passerculus rostratus (*Cass.*) *Baird.* LARGE-BILLED SPARROW.—Two females were taken Aug. 20 on the shore of the Gulf of California at Port Lobos, Sonora, Mexico. Mr. Ridgway, who has kindly examined them, confirms my opinion that they are typical *rostratus*.

Centronyx bairdi (*Aud.*) *Baird.* BAIRD'S SPARROW. — Two adult males, in worn and very ragged breeding plumage, were taken respectively Aug. 29 and 30, in Southern Arizona, eight miles north of the boundary line, and ten miles northeast of Sasabe, Sonora, Mexico. The dates of capture and condition of these specimens would seem to imply that the species breeds in Arizona.

Passerina versicolor (*Bonap.*) *Gray.* VARIED BUNTING.—A female, apparently adult, but in perfectly fresh, unworn plumage, was taken July 14 at Crittenden, near the Santa Rita Mts. I can find no previous record of the occurrence of this species in Arizona.

Junco cinereus (*Swains.*) *Cab.* MEXICAN JUNCO.—*Juv., first plumage* (♀ No. 2102, Santa Rita Mts., July 5). Top and sides of head dusky-ash; under parts ashy-white; chestnut of back spreading over the wing-coverts and inner secondaries as in the adult; entire plumage of head and body—except the abdomen and crissum, which are immaculate—thickly spotted and streaked with dull black; lores black.

Sturnella magna mexicana (*Scl.*) *Rigdw.* MEXICAN MEADOW LARK.—Two Meadow Larks, a male and female, taken respectively July 22 and 24 at Crittenden, Arizona, prove rather unexpectedly to be typical *mexicana*. As this form—closely related to *magna* of the East—seems never to have been detected before to the westward of Texas within the United States, its occurence in Arizona, in the heart of the *neglecta* country, is not less interesting than unexpected.

Myiarchus mexicanus magister *Ridgw.* ARIZONA CRESTED FLYCATCHER.— *Juv., first plumage* (♀ No. 2434, Camp Lowell, Aug. 5). Generally similar to the adult, but with the crown tinged with reddish, the back duller brown, the throat paler ash, the outer edges of all the wing-

coverts, primaries, and secondaries (except the inner two), strongly rusty, and the outer, as well as inner edges of all the tail-feathers edged with rusty.

Myiarchus lawrencei olivaceus *Ridgw.* OLIVACEUS CRESTED FLYCATCHER.—*Juv., first plumage* (♀ No. 2235, Santa Rita Mts., July 15). Differing from the adult chiefly in having all the tail-feathers conspicuously margined with rusty on both outer and inner webs, all the wing-feathers, including both rows of coverts, tipped and edged with rusty, the ash of the throat paler, and the yellow of the under parts much duller.

Cæligena clemenciæ *Lesson.* BLUE-THROATED CASIQUE.—The specimen announced in the last issue of 'The Auk' (Vol. II, No. 1, January 1885, p. 85) as having been taken by Mr. Stephens at Camp Lowell was really shot by Mr. F. Ball (Mr. Stephens's assistant) in the Santa Catarina Mts., a neighboring, but of course widely different locality. The bird bore a label with "Camp Lowell" printed on the face in large letters and I overlooked the inscription of the exact place of capture, which was rather indistinctly written in among some other manuscript data.

Eugenes fulgens (*Swains.*) *Gould.* REFULGENT HUMMINGBIRD.— A female, apparently adult, was taken in the Santa Rita Mts., July 5.

Picus stricklandi *Malh.* STRICKLAND'S WOODPECKER.—*Juv., first plumage* (♂ No. 2001, Santa Rita Mts., June 27). Entire crown scarlet; forehead smoky brown; occiput dull plumbeous; remainder of upper parts, including wings, clear olive-brown; underparts very densely spotted on a yellowish-white ground. Otherwise like the adult. A female (No. 2096, Santa Rita Mts., July 4) is precisely similar to the last, with the red crown patch fully as extended and deep in tint. Another female, rather younger, has the red of the crown restricted to the extreme tips of the feathers, as well as duller, yellower, and altogether less conspicuous.

Colinus ridgwayi nov spec. MASKED QUAIL.

♂ *adult.* Whole head, neck, and throat black, except the centre of the crown posteriorly and the occipital and nuchal regions, which are varied with black, white, and cinnamon, the black predominating; under parts warm brownish cinnamon, immaculate except on the flanks, where a few of the feathers are spotted marginally with white and dull black, and on the under tail-coverts, the central feathers of which are broadly tipped with brownish-white and crossed with v-shaped bars of black; inner secondaries, wing-coverts, scapulars, and fore part of back of nearly the same color as the under parts but paler and pinker, the feathers everywhere barred and mottled with whitish and dark brown or dull black; upper tail-coverts, rump, and back posteriorly grayish-drab, obscurely barred and mottled with dark brown and whitish; primaries drab, mottled with whitish on their outer webs; tail feathers bluish-ash, finely vermiculated with pale brown and whitish, most strongly on the central pair. Bill black; legs and feet horn color. Length, 9.70; extent, 14.50; wing, 4.45; tail, 2.75; tarsus, 1.20; bill, .30 deep by .34 long from nostril. Type, No. 2599, Coll. F. Stephens.

This species seems to most nearly resemble *C. coyolcos*, but differs in the restriction of the black to the head, neck and throat, in the absence of white frontal and superciliary stripes, and in its decidedly larger size.

The type specimen was taken by Mr. Stephens, Aug. 11, about eighteen miles southwest of Sasabe, Sonora, Mexico, and hence very near the boundary. Mr. Stephens on the same trip saw a precisely similar bird a few miles *north* of the line, and within Arizona and he writes me that he has recently examined two specimens which were actually taken in Arizona, thus adding the species to our fauna.

NOTES ON SOME SPECIES OF BIRDS ATTRIBUTED TO POINT BARROW, ALASKA.

BY JOHN MURDOCH.

MR. E. W. NELSON, in his paper on 'The Birds of Bering Sea and the Arctic Ocean,'* mentions several species of birds as occurring at Point Barrow, which were not afterwards observed there by our party.

His opinions are based upon observations made during a hasty visit of a day or two, when on board of the Revenue-cutter Corwin in 1881, and upon generalizations from the abundance of the species in more southern parts of the Territory. The results of two years' careful and continuous observation and collecting in this locality lead me to consider Mr. Nelson in error on these points, and it seems to me desirable that the correction of these errors should be published before the statements have gained currency from length of time and frequent quotation. The following are the species in question:

Ægiothus linaria. Of this species, Mr. Nelson merely says, "We found it with the preceding at East Cape, Siberia, Point Barrow, and at nearly every place we landed." As he does not appear to have obtained specimens, and as we did not obtain it in either season, his statement of its occurrence must have been founded on the supposition that the two species would always be found together. It is worthy of note that the preceding species (*Æ. canescens exilipes*) which he speaks of as "perhaps the most abundant of all the land birds .... on the Alaskan shore .... north to Point Barrow," was decidedly rare at Point Barrow in the season of 1882 and was not observed in 1883.

* Cruise of the Revenue Steamer Corwin in Alaska and the N. W. Arctic Ocean in 1881. Washington, 1883.

Passerculus sandwichensis alaudinus. This species, referred to as probably common at Point Barrow, does not occur there.

Asio accipitrinus. Mr. Nelson says, "On the Alaskan coast of the Arctic, it is found nearly if not quite to Point Barrow." It was not found at Point Barrow.

Ægialitis semipalmatus. This species was not seen, although Mr. Nelson's remarks would lead to the inference that he saw a pair there in 1881.

Ereunetes pusillus. This bird, which is said to breed at Point Barrow, only occurs in the autumn migrations, when large flocks of the young appear among the mudholes at Elson Bay, moving southwest along the coast.

Numenius hudsonicus. Referred to as occurring "north to the vicinity of Point Barrow." We did not see it, and the only species of Curlew observed (*N. borealis*) was rare and irregular.

Dafila acuta. Referred to as nesting "in the greatest abundance .... to the farthest northern extreme of Alaska in the vicinity of Point Barrow." We found the bird comparatively rare and none breed. The natives say they are abundant inland on the rivers.

Nettion carolinensis. It does not reach Point Barrow, as Mr. Nelson thought might be the case.

Mergus serrator. Referred to as found "along the Alaskan coast of the Arctic to Point Barrow." We neither saw nor obtained it.

The following species, supposed by Mr. Nelson not to reach Point Barrow, were obtained by our party.

Limosa lapponica novæ-zelandiæ. A few immature birds were obtained in the autumn migrations.

Grus canadensis (= *fraterculus* Cass.). These birds were seen and two taken in June, 1883.

Lampronetta fischeri. This species occurs sparingly with the other Eiders in the great spring flights, and a few remain on land and undoubtedly breed, as a female was shot with an egg ready for laying in the oviduct, and half-grown young were taken in August, 1883.

WASHINGTON, D. C.

CHANGE OF COLOR IN THE WING-FEATHERS OF THE WILLOW GROUSE.

BY C. HART MERRIAM, M. D.

AT the last meeting of the American Ornithologists' Union Dr. Leonhard Stejneger exhibited the type specimen of 'A new subspecies of Willow Grouse from Newfoundland,' which he named *Lagopus alba alleni*. He characterized it as follows:

"Similar to *Lagopus alba* (Gm.), but distinguished by having the shafts of both primaries and secondaries black, and by having the wing-feathers, even some of the coverts, marked and mottled with blackish. Habitat: Newfoundland."*

In the discussion which this announcement occasioned, Mr. William Brewster expressed the opinion that the characters pointed out might prove seasonal. To this Dr. Stejneger replied that since the primaries were moulted but once a year their color could not possibly be influenced by season, but must be permanent.† I then stated that I could not agree with Dr. Stejneger, for, when in Newfoundland, I had examined several hundred specimens of this Ptarmigan in the flesh, and was fully convinced that change of color of individual feathers did take place, both independent of and coincident with the moult. In this belief I was supported by Mr. D. G. Elliot.

My views have recently been confirmed in the most gratifying manner. Mr. Napoleon A. Comeau of Godbout, on the north shore of the St. Lawrence near the Gulf, was present at the meeting of the Union and was much interested in this discussion. Since his return (in fact, between the 6th and 14th of November, 1884) he has killed no less than three hundred Willow Grouse at Godbout, and has had the kindness to send me one hundred and fifty of their wings. The locality is a little more than four hundred miles west of Newfoundland, and Ptarmigan generally appear there early in December, a few occasionally remaining till May.

They sometimes come in enormous numbers, while at other times they are not seen at all for several years. They arrived nearly a month earlier than usual this winter: two were seen November 2, and large flocks appeared on the 7th. The change from summer to winter plumage was already nearly completed.

The large series of wings sent by Mr. Comeau demonstrates beyond a question that individual feathers do change color. Most of them are already pure white excepting the shafts of the six outer primaries, which, as usual in winter specimens of *Lagopus albus*, are black. The quantity of black varies greatly in the different wings. In those in which the change is most advanced it is merely a narrow strip of pale sooty-brown extending along

* This description has since been published in 'The Auk,' Vol. I, No. 4, Oct., 1884, p. 369.

† Dr. Stejneger has since informed me that he is prepared to admit that change of color in the primaries can take place.

the middle of the upper surfaces of the shafts of the six outer primaries, and is confined to the middle half of the exposed part of each, so that the basal half, and a considerable apical portion, together with all the rest of the wing, is pure white.

In the other extreme, the black covers the exposed portions of the outer surfaces of the shafts of all the primaries (sometimes being as intense on the 8th, 9th, and 10th, as on the 2d, 3d, and 4th) and also of the 'false wing' (alula). The under surfaces show it, but in a much less degree. The black is not limited to the shafts, and in some cases all the primaries, except the first, are extensively blotched and marbled with sooty, the markings being most distinct subapically. The coverts also are occasionally clouded.

Unfortunately, the wings were severed at the carpo-metacarpal joints; consequently it is impossible to say whether the secondaries had black shafts or not. But the primaries present every intermediate phase between their normal winter condition in typical *L. albus*, and the extreme dark mottled form characterized by Dr. Stejneger.

It is worthy of note that many of these wings are deeply tinged with a delicate and very beautiful shade of rose-pink, which is more pronounced than in a freshly killed Roseate Tern. The color is very transient and has already begun to fade in specimens which have been exposed to the light but little more than a week.

RECENT LITERATURE.

Gurney's 'List of the Diurnal Birds of Prey.'*—In a compact little volume of less than 200 pages, we have the fulfilment of Mr. Gurney's promise to supplement his valuable critical notes, published in 'The Ibis' for 1875-1882, on Mr. Sharpe's 'Catalogue of the Accipitres or Diurnal Birds of Prey in the collection of the British Museum,'† by a tabular index to the species, with references and annotations. The plan,

* A list | of the | Diurnal Birds of Prey, | with | references and annotations: | also | a record of specimens | preserved in the | Norfolk and Norwich Museums. | By | John Henry Gurney. | London: | John Van Voorst, 1 Paternoster Row, E. C. | MDCCCLXXXIV. | Small 8vo., pp. i-xv, 1-187.

† Catalogue of the Birds in the British Museum. Volume I. London: Printed by order of the Trustees, 1874. 8vo., pp. i-xiii, 1-480, pls. I-XIV.

as orignally announced, has been modified so as to include all the species known to the author, together with a series of 'Appendices,' fifteen in number, each consisting of a special paper reviewing critically some particular group or species. Regarding this additional matter we quote from the preface (p. vi) :—"Since my notes on Mr. Sharpe's volume were published in the 'Ibis,' I have seen occasion to modify my views as regards a few species, and have obtained additional information as to some others, and these results I have added to my present list in the form of footnotes, or, when too lengthy to be so introduced, in the shape of Appendices."

The work is based ostensibly upon the collection of Diurnal Raptores in the Norwich Museum, and indeed furnishes a list of the specimens contained in that establishment; but it is replete with interesting information derived from other sources, among which the British Museum and United States National Museum figure most prominently. The unequalled richness of the material which Mr. Gurney has had at his command may be appreciated when it is stated that of the 473 species and subspecies given in the catalogue, and embracing all that are known, no less than 385, represented by 2895 specimens, are contained in the Norwich Museum.*

The 'Appendices' which pertain specially to North American Falconidæ are the following:

'Appendix H. On the Genus *Buteola*.' Pp. 146, 147.

'Appendix N. On the Existence in North America of *Hierofalco gyrfalco*, and its possible Hybridism with *H. holbœlli*.' Pp. 161, 164.

Under the first heading are treated the *Buteo brachyurus* Vieill., and *B. fuliginosus* Scl.,† which are considered to be light and dark (melanistic) phases of one species. Regarding the Gyrfalcons, Mr. Gurney says:

"The result of the comparisons which I have here recorded leads me to agree with the conclusion previously arrived at by Mr. Sharpe and by Mr. Dresser that *H. gyrfalco* is found in the northern parts, not only of Europe and of Asia, but also of North America. The North American range of this species, however, has not at present been very clearly ascertained, especially to the eastward, and a similar uncertainty exists as to the western limits of *H. holbœlli*, as also to the localities, if such there be, where both races occur and where hybridism may perhaps result from such propinquity. As I have already mentioned in my Notes, the Norwich Museum possesses three immature Falcons from Hudson's Bay, and these I believe to be referable to *H. gyrfalco;* but as they are not in adult dress, I do not feel absolutely certain of the correctness of this identification. The question of the geographical range of these Falcons is one which I think affords an interesting subject for further investigation, and which I trust will receive the attention it merits."

As to other North American species of the family there are few departures from the nomenclature of Bulletin 21 of the United States

* Of Owls, the same museum possesses 171 species and 1009 specimens!

† *Cf.* Bull. Nutt. Orn. Club, VI, Oct. 1881, pp. 207—214.

National Museum ('Nomenclature of North American Birds'), but the following may be noted:

Astur atricapillus striatulus is not considered a "valid subspecies."

The American Golden Eagle is not deemed separable from that of the Palæarctic Region, and is therefore given simply as *Aquila chrysaëtus*.

Buteo borealis socorroensis is ranked as a species.

Asturina nitida plagiata is given as *A. plagiata*.

Elanus leucurus is considered as a subspecies of *E. axillaris*.

Falco albigularis is given as *Hypotriorchis rufigularis*, and *Rhynchofalco fusco-cærulescens* is also referred to *Hypotriorchis*.

Tinnunculus sparverius isabellinus is treated as a species, while *Æsalon richardsoni* is reduced to a subspecies of *Æ. columbarius*.

Hierofalco mexicanus polyagrus is given as *Falco mexicanus*, under the subgeneric heading of *Gennaia*.

Hierofalco gyrfalco obsoletus is recognized as a distinct species, *Falco labradoris*, while *H. g. islandus* and *H. g. candicans* are also considered specifically distinct, under the names of *Falco islandus* and *F. candicans*, respectively.

It is worthy of remark, that in the case of subspecies Mr. Gurney does not use trinomials, the distinction from the species, so far as typography is concerned, consisting only in the heading 'Subspecies,' and the prefix '*a*,' or '*b*' (according to the number of subspecies) to the name.

The classification adopted strikes us as being far more natural than most of the more recent arrangements; yet we regret to observe the association of such radically distinct forms, structurally considered, as the following: *Herpetotheres* and *Circaëtus; Micrastur* and *Geranospizias* with *Accipiter* and allied genera; *Elanoides, Rostrhamus, Ictinia*, etc., with *Milvus, Haliastur*, etc., and *Harpagus* with the true Falcones. A perfectly natural classification of this most difficult group of birds is, however, not possible with our present limited knowledge of their internal structure; and, as Mr. Gurney truly remarks, "it is obvious that a serial arrangement can only record with precision the connection of each genus and of each species with two of the forms which are thus grouped around it, and is therefore so far imperfect that it must of necessity disregard other natural connections, the existence of which cannot be satisfactorily indicated by any method of consecutive linear arrangement."—R. R.

Newton's 'Ornithology.'*—The article on Ornithology in the new edition of the 'Encyclopædia Britannica,' like most of the articles on Birds in that great work, is by Prof. Alfred Newton, and could scarcely have been entrusted to better hands. The article—complementary to that entitled 'Birds' in Volume III of the Encyclopædia—is an elaborate historical résumé of the subject, critically tracing the progress of the science from

* Ornithology. By Alfred Newton, M.A., F.R.S., F.Z.S., F.L.S., Professor of Zoölogy and Comparative Anatomy in the University of Cambridge. Reprinted from the 'Encyclopædia Britannica' [Ed. 9, Vol. XVIII, pp. 1-50] by special permission. Dec., 1884.

the days of Aristotle, Pliny, and Ælian to the present time. All separate works of any importance, whether general, faunal, or monographic, are noticed at greater or less length, according to their merits or importance. except that the faunal works noticed are limited, in consequence of their being so numerous, "to those countries alone which form the homes of English people, or are commonly visited by them in ordinary travel." We miss, therefore, all reference to such important works as Tschudi's 'Fauna Peruana,' Burmeister's 'Thiere Brasiliens,' Salvin and Godman's 'Biologia Centrali-Americana,' etc. Furthermore, it was found necessary to leave unmentioned all "treatises which have appeared in the publications of learned societies, or in other scientific periodicals." While a bibliography of ornithology is here neither attempted, nor is to be properly looked for in such a connection, all works which have had important bearing upon the progress of the science are duly noted, and their influence critically weighed. The various prominent systems of classification are also set forth, and the "rise of the present more advanced school of ornithologists" is traced in considerable detail. Its origin is attributed to the 'few scattered hints' contained in Nitzsch's 'Pterographische Fragmente,' published in 1806. But the attempt made by Merrem, in his 'Tentamen Systematis naturalis Avium' (1812), "must be regarded as the virtual starting-point of the latest efforts in Systematic Ornithology." In chronological order are discussed the labors of De Blainville (1815), Jacobson (1820), Nitzsch (1820-40), L'Herminier (1827), Berthold (1831), Cuvier and Geoffrey (1832), Gloger (1834), Macgillivray (1837), Blyth 1838), Brandt (1836-39), Müller (1845-47), Cabanis (1847), Parker (1860 and later), Lilljeborg (1866), Huxley (1867), A. Milne-Edwards (1867-71), Marsh (1870), Sundevall (1872-74), Garrod and Forbes (1873-83), Sclater (1880), and others less prominently identified with the subject. The classification of birds is finally discussed from the author's own standpoint, but he presents no formal system, considering it evident that our knowledge of the class is too imperfect to enable systematists to construct a phylogenetic scheme. Finally, after passing the ordinal groups in review, he deals with the supposed high rank of the Turdidæ, which he claims is not "borne out by their alliances, nor by the size of their brain, nor by character of plumage." On the other hand, he claims, with Macgillivray and Parker, "that at the head of the Class *Aves* must stand the Family *Corvidæ*, of which family no one will dispute the superiority of the genus *Corvus*, nor in that genus the pre-eminence of *Corvus corax*—the widely-ranging Raven of the Northern Hemisphere, the Bird perhaps best known from the most ancient times, and, as it happens, that to which belongs the earliest historical association with man."—J. A. A.

Ridgway on the American Red Crossbills.*—In his 'Review' of the American Red Crossbills (*Loxia curvirostra* group) Mr. Ridgway is

* A Review of the American Crossbills (Loxia) of the L. curvirostra type. By Robert Ridgway. Proc. Biolog. Soc. of Washington, II, 1883, pp. 84-107. (Separates issued April 30, 1884.)

"inclined to consider all the Red Crossbills that I [he] has seen, from whatever country, as races of *Loxia curvirostra* Linn." He recognizes three races of American Red Crossbills, one of which (*L. curvirostra bendirei*) is described as new. In size it is larger than *L. c. americana* proper and smaller than *L. c. mexicana*, "between which it may be considered as being about intermediate, so far as size is concerned." Its habitat is given as "Chiefly the western mountain regions of the United States, from Colorado to Oregon and California; in winter not uncommon in Eastern United States (Massachusetts, Maryland, etc.)." In North America the Red Crossbills decrease in size from the north southward, from the small northern subsp. *americana* to the large, heavy-billed subsp. *mexicana* of the southern border of the United States and Mexico. The Japanese Red Crossbill, from the middle or main island of Japan, which has been referred to *L. albiventris* Swinhoe, is renamed *L. c. japonica*, the name *albiventris* being preoccupied for a species of *Munia*. There are also remarks on other races of Red Crossbills, particularly the *L. curvirostra* and *L. pityopsittacus* of Europe.—J. A. A.

Ridgway on Various American Birds.—Mr. Ridgway states that while Mr. Cassin was right in separating the smaller North American Snow Geese from the larger, he erred in giving a new name (*albatus*) to the smaller form, which is identical with the *Anas nivalis* of Forster, "and may therefore be called *Chen* (or *Anser*) *hyperboreus nivalis* (Forst.)."*

Mr. Ridgway, in giving the results of a reëxamination of the types of *Muscicapa fulvifrons* and Coues's *Mitrephorus pallescens*, recognizes three species of the *fulvifrons* group of Flycatchers, as follows: (1) *Empidonax fulvifrons* (Giraud), from east of the Rocky Mountains (2) *E. f. pallescens* (Coues), from west of the Rocky Mountain; (Arizona, New Mexico, and probably portions of Mexico); and (3) *E. f. rubicundus* (Cab.), from Southern Mexico.†

He also claims that the earliest name of the Mexican House Finch (*Carpodacus hæmorrhous*) is *Fringilla mexicana* Müller and that the species should be called *Carpodacus mexicanus* (Müll.), or, should intergradation with *C. frontalis* be proven, *C. frontalis mexicanus* (Müll.).‡

As new subspecies are described§ (1) *Parus atricapillus turneri* (St. Michael's, Alaska), (2) *Psaltriparus minimus californicus* (California), (3) *Colaptes mexicanus saturatior* (Northwest coast, Columbia River to Sitka), (4) *Myiarchus mexicanus magister* (Western Mexico, north to

* Note on the Anas hyperboreus, Pall., and Anser albatus, Cass. Proc. Biolog. Soc. Washington, II, pp. 107, 108. (Separates issued April 30, 1884.)

† Remarks on the type specimens of Muscicapa fulvifrons, Giraud, and Mitrephorus pallescens, Coues. *Ibid.*, pp. 108-110. (Separates issued April 30, 1884.)

‡ Note regarding the Earliest Name for Carpodacus hæmorrhous (Wagler). *Ibid.*, pp. 110, 111. (Separates issued April 30, 1884.)

§ Descriptions of some New North American Birds. *Ibid.*, pp. 89-95. (Separates of this and the following issued April 10, 1884.)

Southern Arizona), (5) *Myiarchus lawrencei olivaceus* (Western Mexico, north to Southern Arizona), (6) *Pediœcetes phasianellus campestris* (Plains east of the Rocky Mountains), (7) *Lophortyx californicus brunnescens* (Pacific coast, from San Francisco Bay north to Washington Territory), and (8) *Phalacrocorax dilophus albociliatus* (Pacific Coast, from California to Cape St. Lucas). The same paper contains important inedited remarks by Dr. Sclater on Kaup's types of *Tyrannula mexicana* and *T. cooperi*, and a rectification by Mr. Ridgway of an error in 'History of Birds of North America' (Vol. II, p. 333) in respect to *Muscicapa lawrencii* Giraud.

Mr. Ridgway also describes* a new American Kingfisher (*Ceryle superciliosa stictoptera*) from Yucatan, publishes a note on *Psaltriparus grindæ*,† and another on the generic name *Calodromas* Scl. & Sal.‡ for which he proposes to substitute *Calopezus*, *Calodromas* being preoccupied for a genus of Coleoptera. —J. A. A.

Jordan's 'Manual of Vertebrates.'—The fourth edition of this excellent Manual§ (for notices of previous editions see Bull. Nutt. Orn. Club, I, pp. 93, 94, and III, pp. 145, 146) though from the same stereotype plates as the second (1878) and third (1880) is again "brought fully up to date, so far as it is possible to do so without alteration in the arrangement of the genera or insertion of additional matter." Many changes in nomenclature, however, have been made by alterations in the stereotype plates, and an appendix gives a few species additional to those contained in the body of the work.—J. A. A.

Shufeldt on the Osteology of Numenius longirostris.‖—Besides a detailed account of the osteology of *Numenius longirostris*, illustrated with two beautiful plates, the comparisons of the ostological characters of this species with those of many other Limicoline birds add greatly to the value of this excellent monograph.—J. A. A.

Rives on the Birds of Newport, R. I.—In this paper** Dr Rives reviews in an informal manner the birds found in the vicinity of Newport,

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* Description of a New American Kingfisher. *Ibid.*, pp. 95,96.

† Note on Psaltriparus grindæ Belding. *Ibid.*, p. 96.

‡ Note on the Generic Name Calodromas. *Ibid.*, p. 97.

§ Manual of the Vertebrates of the Northern United States, including the District east of the Mississippi River, and north of North Carolina and Tennessee, exclusive of Marine Species. By David Starr Jordan, Ph. D., M. D., Professor of Biology in Indiana University. Fourth edition, revised and enlarged. Chicago: Jansen, McClurg & Company, 1884. 8vo., pp. 406.

‖ Osteology of *Numenius longirostris*, with Notes upon the Skeletons of other American Limicolæ. By R. W. Shufeldt, Capt. Med. Corps U. S. Army [etc.]. Journ. Anat. & Phys., Vol. XIX, Oct. 1884, pp. 51-82, pl. iv and v.

** The Birds of Newport. By William C. Rives, Jr., M.D. Proc. Newport Nat. Hist. Soc., 1883-84. (July, 1884). pp. 28-41.

mentioning briefly most of the species known to occur there. The paper contains many notes of interest, particularly respecting the rarer winter residents and various casual visitors.—J. A. A.

Bell on Birds observed between Norway House and Forts Churchill and York.—This is an annotated list* of 55 species, of much interest from the localities of observation. Though published in 1880, it has not previously been noticed in either the 'Bulletin N. O. C.' or 'The Auk.'—J. A. A.

Minor Ornithological Publications.—The concluding numbers of 'The Canadian Sportsman and Naturalist'† (Vol. III, Nos. 11 and 12, Dec., 1883) contain the following (Nos. 773-775):

773. *Animals that have disappeared in Recent Times. Canadian Sportsman and Naturalist*, Vol. III, pp. 278-280.—Refers to the Great Auk, the Labrador Duck, the Moas, *Notornis*, etc.

774. *American Ornithologists' Union. Bird Migration.* By C. Hart Merriam. *Ibid.*, pp. 281, 282.—Circular of the A. O. U. Committee on Bird Migration for 1884.

775. *Nesting of the Common Rail* (*Porzana Carolina*) Niell (= Vieill.). By William L. Kells. *Ibid.*, pp. 283, 284.

Stearns's 'Bulletin of Massachusetts Natural History,' Vol. I, Nos. 1-4, April-July (all thus far published!), contains the following (Nos. 776-782):

776. *Olden Time Notes on Natural History.* Editorial. *Bull. Massachusetts Nat. Hist.*, I, pp. 3-6.—Mostly an extract from Timothy Dwight's 'Travels in New England and New York,' published in 1821, containing allusions to plants, mammals, and birds.

778. *American Ornithologists' Union. Bird Migration.* By C. Hart Merriam. *Ibid.*, pp. 11-13.—Circular of the A. O. U. Committee on Bird Migration for 1884.

779. *A Few Bird Notes.* Editorial. *Ibid.*, No 2, p. 4.—Notes on the arrival of birds in April at Amherst, and allusion to the finding of nests of the Duck Hawk on Mount Tom and Sugar Loaf Mountain in Massachusetts.

780. [*First Capture of the Titlark* (*Anthus ludovicianus*) *at Amherst, Mass.*] By W. A. Stearns. *Ibid.*, p. 14.

781. *Henslow's Bunting. Coturniculus henslowi* (*Aud.*) *Bp.* Editorial. *Ibid.*, Nos. 3-4, p. 2.—Refers to various previously recorded instances of its occurrence in Massachusetts, and the capture of a specimen at Amherst, June 7, 1884, where the bird is 'almost common.' Also record of the capture at Amherst of the Red-headed Woodpecker.

782. *Birds of Amherst.* [By W. A. Stearns.] *Ibid.*, pp. 6-23.—Re-

* List of Birds from the Region between Norway House and Forts Churchill and York. [By Robert Bell.] Geological Survey of Canada. Report of Progress for 1878-79 (1880). IV, Appendix VI, pp. 676-706.

† For the index to the ornithological articles in the previous numbers of this journal see Auk, pp. 185, 186, April, 1884.

printed, with additions, from the Amherst 'Record,' June-Aug., 1883. (See *anteà*, No. 448, Bull. N. O. C., VIII, p. 238.)

The 'American Naturalist,' Vol. XVIII, 1884, contains, besides various extracts and abstracts from other publications, the following (Nos. 783-792):

783. *The Carolina Wren; a Year of its Life.* By Charles C. Abbott, M. D. *American Naturalist*, Vol. XVIII, pp. 21-25.

784. *Wood Notes and Nest Hunting.* By Horace Lunt. *Ibid.*, pp. 155-160.—Pleasantly written notes about, chiefly, the Wood Pewee and Ovenbird.

785. *A Labor-Saving Fish Hawk.* By T. R. Peale. *Ibid.*, pp. 212, 213.—About the nesting of this species.

786. *Barn Owls in Missouri.* By F. A. Sampson. *Ibid.*, p. 309.

787. *Notes on the Red-wing Blackbird.* By Charles Aldrich, *Ibid.*, pp. 309, 310.—On its nesting habits and decrease in numbers through the reclamation of wet lands.

788. *Migration of North American Birds.* By C. Hart Merriam. *Ibid.*, pp. 310-311.—Circular of the A. O. U. Migration Committee for 1884.

789. *On the Shedding of the Claws in the Ptarmigan and Allied Birds.* By Leonhard Stejneger. *Ibid.*, pp. 774-776.

790. *Does the Crow Blackbird eat Crayfish?* By Clarence M. Weed. *Ibid.*, p. 832.—Part of a crayfish was found in the stomach of a young Crow Blackbird. (See on this subject, *anteà*, Nos. 478 and 480.)

791. *Innovations in Nomenclature.* Editorial. *Ibid.*, pp. 906-908.—Approves of 'trinomial nomenclature,' but objects to four other recent American 'innovations.'

792. *Note on the Pelvis in Birds and Dinosaurs.* By Dr. J. G. Baur. *Ibid.*, pp. 1273-1275.

'Science', Vols. III and IV, 1884, contains the following (Nos. 792-805):

792. *Barn-owls in southern Ohio.* By A. W. Butler. *Science*, Vol III, p. 31.—Fourteen specimens were taken, in the fall of 1883, near Cincinnati, where it had previously been of rare or accidental occurrence.

793. *Osteology of the Cormorant.* By J. A. Jeffries. *Ibid.*, p. 59.—Reply to Dr. Shufeldt (see *anteà*, Nos. 592-594) on this subject.

794. *Barn-owls in Missouri.* By F. A. Sampson. *Ibid.*, p. 116.—Unusual numbers about Sedalia.

795. *Osteology of the Cormorant.* By R. W. Shufeldt. *Ibid.*, p. 143.—In answer to Mr. Jeffries (see No. 793).

796. *Migration of birds in England. Ibid.*, pp. 158, 159.—From 'Nature.'

797. *Rare Vermont birds.* By F. H. Herrick. *Ibid.*, p. 216.—Notes on 14 species. Records the capture at Rutland in spring of *Oporornis agilis*, and the breeding of *Recurvirostra americana*(!), *Helminthophaga celata*(!), *Lanius ludovicianus*, *Loxia leucoptera*, *Chyrsomitris pinus*, *Picoides arcticus*, and *Gallinula galeata* at different localities in the State. Notes also the capture of *Phalacrocorax carbo*, *Sterna fuliginosa*,

Hydrochelidon lariformis and *Alle nigricans*. The Cormorant and Short-tailed Terns mentioned, and perhaps some of the other instances, appear to have been previously recorded. (See below, No. 801, where *H. celata* and *R. americana* are expunged from the list.)

798. *Stones placed in pine-trees by birds.* By C. R. Orcutt. *Ibid.*, p. 305.—Stones substituted in some cases for acorns by the acorn-storing Woodpeckers in California.

799. *Osteology of the Cormorant.* By Theodore Gill. *Ibid.*, p. 404.—Refers to a special paper by Yarrell on the subject, in which the 'occipital style' of Shufeldt and Jeffries is called the 'xiphoid bone.'

800. *Osteology of the Cormorant.* By J. Amory Jeffries and R. W. Shufeldt. *Ibid.*, p. 274.—Comment on Dr. Gill's note. (See last title.)

801. *Rare Vermont birds.* By Francis H. Herrick. *Ibid.*, p. 303.—States that *Recurvirostra americana* and *Helminthophaga celata* were given in his former note (see above No. 797) on this subject "on mistaken evidence."

802. *Coues's Key to North American birds.* [By J. A. Allen.] *Ibid.*, Vol. IV, pp. 86, 87.—Notice of the work.

803. *Increase in growth of young robins.* By Charles S. Plumb. *Ibid.*, p. 159.

804. *The American ornithologists' union. Ibid.*, pp. 374-376.—Report of the meeting of 1884.

805. *The bird collection of the U. S. national museum.* By Robert Ridgway. *Ibid.*, pp. 496, 497.—Its history and present status.

'Science Record,' Vol. II (closing, we are sorry to say, the short-lived career of this excellent journal, 'worthy of a better fate'), contains the following (Nos. 806-811):

806. *The American Ornithologists' Union.* By E[lliott]. C[oues]. *Science Record*, II, pp. 13, 14.—Account of the founding of the A. O. U.

807. *The Blue Grosbeak.* By G. E. Manigault, M. D. *Ibid.*, pp. 33, 34.—'Quite abundant' near Charleston, S. C. Short account of its habits, and record of the capture of two specimens of Swainson's Warbler in 'August last' (1883!) The latter proves to have been based on an erroneous identification (see Auk, II, p. 105).

808. *Chuck-will's Widow.* By Arthur T. Wayne, *Ibid.*, pp. 82, 83.—Account of its habits as observed at Charleston, S. C.

809. *Classification of Birds.* By Leonhard Stejneger. *Ibid.*, pp. 154, 155.

810. *Note on the Bronzed Cow-Bird.* By Geo. F. Gaumer. *Ibid.*, pp. 262, 263.—Description of *Molothrus æneus*, and account of its habits as observed in Yucatan.

811. *The English Sparrow. Ibid.*, pp. 264, 265.—A reproduction of a humorous, erroneous, and unfair newspaper report of the Report of the A. O. U. Committee on the European House Sparrow.

812. *Ornithological Field Notes, with one Addition to the Cincinnati Avian Fauna.* By William Hubbell Fisher. *Journ. Cincinnati Soc. Nat. Hist.*, VII, No. 1, April, 1884, pp. 10-13.—The species added is

Falco peregrinus nævius, and there are notes on *Astur atricapillus*, *Loxia curvirostra americana*, *Lanius borealis*, and *Bubo virginianus*.

813. *A List of our local Birds represented in the Museum [of the Vassar Brothers Institute]*. By W. G. Stevenson, M. D. *Trans. Vassar Brothers Institute*, II, 1883-84, pp. 153-162.—A nominal list of the species represented.

814. *Dates of the Appearance of Herring, Shad, Bass, Tautog, Scup, Frostfish, Fish-hawks, Kingfishers, and Greenland Seal in Taunton River, from 1871 to 1883, inclusive*. By Elisha Slade. *Bull. U. S. Fish Comm.*, III, p. 478, Dec. 7, 1883.—Table of dates.

815. *A Rare Visitor*. By Thirlstane [= David Thirslane Bruce]. *Brockport [N. Y.], Republic*, May 29, 1884.—Capture of *Cathartes aura* near Brockport, N. Y. (See Auk, I, p. 293, where the same specimen is again recorded.)

The 'American Field,' Vols. XXI, XXII, 1884, contains, besides articles from 'The American Naturalist,' 'The Auk,' 'Science,' London 'Field,' etc., the following (Nos. 816-845):

816. *Bird Migration in the Mississippi Valley*. By W. W. Cooke and Otto Widmann. *American Field*, Vol. XXI, Jan. 5, p. 9; Jan. 19, pp. 67-68; Jan. 26, pp. 88, 89. (Concluded from preceding volume. See Auk, I, p. 188.)

817. *The Upland Plover*. By Mont Clare (of Claremont, N. H.). *Ibid.*, Jan. 12, pp. 35-37.—On the habits of the bird.

818. *American Ornithologists' Union—Bird Migration*. By C. Hart Merriam. *Ibid.*, Feb. 2, p. 113.—Circular of the Committee on the Migration of North American Birds. (See The Auk, I, pp. 71-76.)

819. *Bird Migration*. By W. W. Cooke. *Ibid.*, Feb. 16, p. 162.—An appeal for correspondents in the Mississippi Valley District.

820. *Yoke-toed Birds — (Zygodactyli)*. By Col. A. G. Brackett, U. S. Army. *Ibid.*, Feb. 23, p. 185.—On North American Woodpeckers and Cuckoos.

821. *The Titlark Sparrow (Passerculus Anthinus Bonap.)*. By B. T. Gault. *Ibid.*, Feb. 23, pp. 185, 186.—Account of three specimens, and of nest and eggs, taken in San Diego Co., Cal.

822. *The Cranes*. By Col. A. G. Brackett, U. S. Army. *Ibid.*, March 1, p. 209.—Desultory notes on, chiefly, North American Cranes *and Herons*.

823. *The Genus Empidonax*. By Morris Gibbs. *Ibid.*, March 8, p. 232. Interesting notes on the four species occurring in Michigan.

824. *The Humming-bird[s]—(Trochilidæ)*. By Col. A. G. Brackett, U.S. Army. *Ibid.*, March 8, pp. 232, 233.—Unimportant notes on several North American species.

825. *Perching Birds—(Insessores)*. By Col. A. G. Brackett, U. S. Army. *Ibid.*, March 15, pp. 256, 257.—Remarks on various North American species, consisting largely of quotations from authors.

826. *A Plea for the Hawks*. By G. H. Ragsdale. *Ibid.*, March 22, p. 281.—Urging discrimination in the slaughter of these birds, the greater

part of which are beneficial, they subsisting chiefly upon noxious mammals and insects.

827. *Nuttall's Woodpecker* (*Picus Nuttallii*). By B. T. Gault. *Ibid.*, March 29, p. 305.—On its habits, from observations made in the San Bernardino Valley, Cal.

828. [*Woodcock Nesting in Northern Mississippi.*] By N. B. Nesbitt. *Ibid.*, March 29, p. 305.

829. *The Valley Quail.* By T. S. Van Dyke. *Ibid.*, May 17 and 24, pp. 473, 474, 496, 497.—A detailed account of its habits forms Chap. XXIII and XXIV of a series of papers entitled 'The Hills and Streams of Southern California.'

830. *Bird Migration.* By B. W. Everman. *Ibid.*, June 7, pp, 544, 545.—List of arrivals at Camden, Ind., March 30 to May 12, 1884. Also, under same heading, notes by 'W. C. A.' on a few species observed at Greensboro, Ala.

831. *A Winter Day's Observations on Birds at Dan's Station, Stark Co., Ind.* By H. K. Coale. *Ibid.*, June 7, p. 545.

832. *Habits of Geese* [*in Confinement*]. By Junius P. Leach. *Ibid.*, June 14, p. 569.

833. *Colonel Brackett on Cranes.* By 'Byrne.' *Ibid.*, June 21, pp. 592, 593.—Correction of errors in Col. B's article on this subject (see above, No. 822).

834. *Bob Blue* [*Calipepla squamata*] *and his Kinsfolk.* By Charles Hallock. *Ibid.*, June 28, pp. 616, 617.—On the Quails of Texas.

835. *History of a Wing-tipped Quail* [*Ortyx virginianus*]. By J. L. T. *Ibid.*, Vol. XXII, July 12, p. 34.

836. *A Rare Bird.* By Dr. A. Wall. *Ibid.*, July 26, p. 82.—Capture of the Wood Ibis near Bloomery, W. Va.

837. *The Birds* [*of California*]. By T. S. Van Dyke. *Ibid.*, Aug. 23, pp. 176, 177.—An article of three columns in length, giving remarks of some interest on various species.

838. *Foraging by Smell.* By Charles Hallock. *Ibid.*, Sept. 6, p 255.—Detailing observations on the habits of the Turkey Buzzard in relation to its alleged keen sense of smell.

839. *What the Crow Eats.* By R. J. W. *Ibid.*, Oct. 4, p. 321.—Verdict against the Crow.

840. *Four-footed Birds.* [By Edward M. Brigham.] *Ibid.*, Oct. 25, pp. 392, 393.—On the habits and embryonic characters of *Opisthocoma cristata*, which is said to have 'quadrupedal characters' in its early stages, which it retains 'for several days' after hatching!

841. *What the Crow Eats.* By F. L. P. *Ibid.*, Nov. 8, p. 440.—Record of the killing of 'fifteen hundred' in one hunt, at Muldon, Miss.

842. *Fashionable Follies.* By Charles Aldrich. *Ibid.*, Nov. 15, p. 465.—On the 'wanton and wasteful' destruction of birds for millinery purposes.

843. *What the Crow Eats.* By Charles Aldrich. *Ibid.*, Nov. 22, p.

488.—In behalf of the Crow, and criticising the wholesale slaughter mentioned by 'F. L. P.' (see above, No. 841).

844. *The Canada Goose.* By A. A. Mosher. *Ibid.*, Dec. 6, p. 537.—Nests in large numbers about Spirit Lake, Ia.

845. *What the Crow Does Eat.* By M. G. Ellzey, M. D. *Ibid.*, Dec. 13, p. 561.—Strong charges against the utility of the Crow.

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GENERAL NOTES.

The Wood Thrush in Maine.—On September 6, 1884, I shot a young male Wood Thrush (*Turdus mustelinus*) at Saco, Maine. This is, I believe, the first recorded instance of its capture along the coast north of Massachusetts, and the only one for Maine.—JOSEPH L. GOODALE, *Cambridge, Mass.*

The Occurrence of the Catbird (*Mimus carolinensis*) on the Farallone Islands, Pacific Ocean.—Our Catbird appears to be not only extending its range, but wandering into very strange places. On the third of September, 1884, the U. S. Lighthouse Steamer 'Manzarrita' landed myself and assistant on one of the Farallone Islands for the purpose of collecting sea lions for the National Museum. We were rowed ashore amid the roar of hundreds of sea lions, and the screams of myriads of birds.

Immediately upon landing I accompanied the Inspector to the lighthouse, which occupies the highest rocks three hundred feet above the sea. Near the tower, surrounded by Murres, Puffins, and Gulls, I saw a bird which of all birds was the least to be expected in such a place—a 'regular' eastern *Catbird*.

I rushed to the landing for my gun and was back on remarkably short order, considering the number of times my unfortunate stomach had paid tribute to Neptune on the passage out from San Francisco, but the bird had disappeared and could not be found. On the following day, however, it was discovered among the rocks near the sea, and its skin is now in the Smithsonian Institution, still surrounded, it is true, by Murres and Puffins, but not noisy ones. The specimen is perhaps not appreciably different from others of the same species with which it has been compared, its small bill being matched in specimens from Key West, and its light colored under parts not being exceptional.

The occurrence of this species on these islands is the more remarkable as it has not yet been recorded from California, being known on the Pacific Coast of the United States only in the region of the Columbia

River. The Farallones (Spanish, meaning pointed rocks in the sea) are disposed in three groups several miles apart, the largest being about a mile long and lying thirty miles west of the Golden Gate. They are well named, for there is neither soil nor vegetation upon them, except the guano of the birds and three species of weeds. In summer the eggs of the birds which swarm there to breed, are gathered by the barrel-full for the San Francisco market.—CHAS. H. TOWNSEND, *Smithsonian Institution, Washington, D. C.*

The Yellow-rumped Warbler Wintering in Maine.—On January 1, 1885, I shot two Yellow-rumped Warblers (*Dendræca coronata*) from a flock of six at Pine Point, Maine. On opening the crop of one, I found it filled with the seeds of the pitch pine. I believe this species has never before been taken in the winter season north of Massachusetts.—JOSEPH L. GOODALE, *Cambridge, Mass.*

The Migration of the Swallows.—I have noticed for several years that before the young Swallows were capable of enduring a prolonged flight, old and young gathered together in one vast assembly and moved gradually southward, making short stages from farm to farm; at last (in 1884, on August 9), with a favorable north wind and a clear sky, they left the Island in a body, only a few stragglers remaining, just enough to remind us that summer was still with us.—FRANCIS BAIN, *North River, P. E. I.*

Nelson's Sharp-tailed Finch (*Ammodramus caudacutus nelsoni*) **on the Atlantic Coast.**—Mr. Arthur T. Wayne sends me a Sharp-tailed Finch which is positively indistinguishable from Illinois specimens, but which was shot on the salt marshes near Charleston, South Carolina, Oct. 8, 1884. That it is really an inland-bred bird scarcely admits of a doubt, nor is its occurrence on this coast altogether surprising in view of the fact that other species which breed only in the interior — *Coturniculus lecontei*, for example — extend their autumnal migrations in a south-easterly direction and winter numerously very near to, if not actually on, the Atlantic seaboard.— WILLIAM BREWSTER, *Cambridge, Mass.*

Wintering of the Swamp Sparrow in Eastern Massachusetts.—The capture of two Swamp Sparrows (*Melospiza palustris*) in Cambridge, on January 11, 1883, has already been recorded,* but a second instance may be of interest.

On December 29, 1884, a flock of four were seen and one killed in a dense thicket on the Fresh Pond marshes in Cambridge, and on January 31, 1885, near the same place, I saw the remains of another, which had been partly eaten by a Shrike. Since then I have looked for them several times unsuccessfully, but think that the rest had probably been killed by Shrikes.—ARTHUR P. CHADBOURNE, *Cambridge, Mass.*

* Journal Boston Zoölogical Society, Vol. II (1883), p. 32.

Cyanocitta stelleri frontalis Nesting in Holes in Trees.—While collecting birds and their eggs in company with my brother, Capt. B. F. Goss, in the spring of 1884, in the vicinity of Julian, California, we found quite a number of the nests of the Blue-fronted Jay, and in all cases but one in holes and trough-like cavities in trees and stubs, ranging from four to fifty feet from the ground, generally ten to twenty feet up. The nest found outside was built upon a large horizontal limb of an oak close beside a gnarl, the sprout-like limbs of which thickly covered the nest overhead, and almost hid it from view below.

From our knowledge of the breeding habits of the family we looked for their nests on trees and bushes, and spent days in climbing over and up and down the hills and mountain-sides, carefully examining every spot that seemed to us a natural nesting place, but without success, though often finding nests of the California Jay (*Aphelocoma californica*); and I am inclined to think we should have returned without their eggs had I not, in suddenly coming to the top of a hill, discovered a pair of the birds hopping over the ground and picking up bits of sticks, which they dropped on seeing me, and flew away. Here was a pointer, and to remove any suspicion that their actions had been observed, I did not halt for a moment or change my course, but walked leisurely on until well out of sight, then swung back around the hill, and cautiously approached a ledge of rocks over-looking the ground and concealed myself behind them. On peeping out I saw the birds busily hopping about picking up material for a nest; they soon flew with it, both together or nearly so, directly to, or rather into, an opening or hollow near the base of a large tree. After watching them make a few trips I stole away and hastened to inform my brother of the lucky find. It was a surprise to us both.

The nests are quite bulky, made loosely of sticks, stems of weeds, and lined with fibrous rootlets and grasses, and as they are all built at or near the opening, the tell-tale sticks project and make the finding of their nests an easy matter. Measurements of the first two sets of eggs taken, viz., May 19: 1.20 × .87, 1.20 × .88, 1.21 × .88; May .21: 1.22 × .88 1.15 × .86, 1.19 × .86, 1.16 × .85. Color light blue, speckled and spotted with dark brown, rather thickest at large end. — N. S. Goss, *Topeka, Kansas.*

The First Nest and Eggs of Eremophila alpestris found in Niagara County, N. Y.—If there is one nest which I have looked for more than for another, it is the nest of the Horned Lark. From early in March till late in May, for the past five years, I have searched in vain. On the 17th of June, 1884, while collecting in the town of Porter, Niagara County, I was fortunate in securing the coveted prize. I was in company with a young farmer, and, as we were returning from our forenoon's tramp, he asked what bird it was, with a black throat, which he saw early in the morning and late in the afternoon, running in the road, and which breeds three times a year. I asked him if it ran or hopped, and how he knew

it bred three times a year. He answered that it always ran, and that he had seen young birds in April, June, and August. I told him that it undoubtedly was the Horned Lark, which was getting to be quite common in this vicinity, and also added, "Have you ever found its nest?" He did not know with certainty, but thought he knew where there was one, and took me to it. The nest was built in the side of a manure heap in the field, and contained four fresh eggs. I secured the male bird only, not having time to secure the female. But I was content to get what I did; and I know that I am safe in saying it is the first nest and eggs of *E. alpestris* secured in Niagara County, and think I might also include Orleans County. A week later the young man sent me a young bird alive, just from a nest, which I killed and sent to Dr. A. K. Fisher, who pronounced it 'a jewel.' I secured a number of young birds in July, but did not succeed in finding any August broods; and but for the assertion of my young friend that he had seen them in that month, I should not have expected to find them; but I am quite certain that I saw birds after the 5th of July that were breeding.— J. L. DAVISON, *Lockport, N. Y.*

The Swallow-tailed Flycatcher in Manitoba and at York Factory.—The Swallow-tailed Flycatcher (*Milvulus forficatus*) is such a characteristically southern bird, that its accidental occurrence in Manitoba is worthy of note. Last January I was shown a splendid specimen taken at Portage la Prairie by Mr. Nash. He found it lying dead on the prairie in the October of 1884. In addition to this record I quote the following rather startling statement from the 'Report' on the Hudson's Bay by Professor Bell of the Canadian Geological Survey, 1882. "But the most singular discovery in regard to geographical distribution is the finding of the Scissors-tail or Swallow-tailed Flycatcher (*Milvulus forficatus* Sw.) at York Factory .... The specimen in the Government Museum was shot at York Factory in the summer of 1880 and I have learned since that these remarkable birds were occasionally seen at the posts of the Hudson's Bay Company, all the way west to the Valley of the Mackenzie River."

The once surprising New Jersey record is now somewhat eclipsed.— ERNEST E. T. SETON, *Toronto, Canada.*

Food of the Hummingbird (*Trochilus colubris*).— Somewhere it has been stated, that the Hummingbird derives the most of its nourishment from the minute insects which adhere to the nectar of flowers, and which are taken with the honey. Undoubtedly many insects are thus secured, and furnish their share of nutriment to the species, but in the following account of a Hummer in confinement, kindly furnished to me by Miss Hattie Brubaker, it will be seen that insects are not wholly essential to the maintenance of life, in *Trochiluscolubris* at least.

The bird, she writes, was taken September 1, near De Pere, Wis., and throve nicely until October 28, when it met an untimely death. After

it had struggled in vain for nearly two days to escape from a room into which it had accidentally flown, it was picked up in an exhausted condition and carefully placed out of doors in an arbor, in hopes of its recovering sufficiently to fly away. A severe cold rain that night completely numbed it, so that it was again taken to the house a mere bunch of rumpled feathers—no life then being apparent. A slight warming quite unexpectedly revived it, and it was but a short time before it opened its eyes and flew to a nail, and then immediately began to rearrange its plumage. As flowers and sweetened water were offered to this captive before it was taken to the arbor, without its once noticing them, Miss Brubaker was rather at a loss to know how to feed it; but at last she conceived of placing some sugar and water in a conspicuous gladiolus blossom, which the Hummingbird soon discovered and visited, drinking greedily the honey that was in the blossom. After this it became quite lively, flying from its nail to some dried flowers and grasses in another room, where it had rested during the two days it had remained in the house without food or water.

With the aid of a petunia blossom as a decoy, this little bird was soon taught to drink from a small phial, holding about two teaspoonfuls of sugar and water (about one-third sugar), that was suspended by a string to the window casing. It was but a day or so before it seemed perfectly contented, not showing the least fear, but seemingly growing stronger as well as larger in its new home.

Miss Brubaker thinks the bird was not an old one, as its tail-feathers grew considerably after she had it. She says that at first they kept a variety of cut flowers in the room with it, but it barely alighted upon them, flying at once to the bottle which it had learned to appreciate. Somewhat after the manner of obtaining nectar from a flower, it would sip a moment at the bottle and then dart away; but it was not long in finding that the supply of sweetened water was inexhaustible, and that there was no necessity of hastening its meal. At times it would drink so much that its wings were unable to sustain the weight of the body, and a fall to the floor was the result of its excessive fondness for this artificial nectar. When left to itself and no check put upon its drinking, it would consume at least half the contents of the phial daily—at least one-half as much as its own bulk.

"We are certain," she writes, "that for at least a month the bird had access to no flowers whatever, thus making it certain that the sweetened water furnished it its sole nourishment, and during this captivity it did not show the first signs of diminishing strength."

At the approach of cold weather it was placed in a cage, in which its little history was brought to a close by its accidentally entangling one of its claws in a loose wire which secured a small perch in the cage, and thus suspended, with its head downward, it was found by Miss Brubaker the next morning — another 'bunch' of rumbled feathers. — SAMUEL WELLS WILLARD, *West De Pere, Wisc.*

The Chuck-will's-widow (*Antrostomus carolinensis*) **in Massachusetts.**— In the month of December, 1884, I found, in the barn of Mr. Geo. A. Tapley, in the town of Revere, Mass., the dried skin of a bird which Mr. Tapley thought was that of a 'strange Whip-poor-will.' The bird was intact, and at first sight one would suppose it to be a stuffed instead of a dried specimen. Attracted by the large size of the bird, the yellow coloration of the plumage, and other signs, I thought I had discovered a species new to this State; namely, the Chuck-will's-widow, or Southern Whip-poor-will. On presenting the specimen to Mr. Allen, of the Museum of Comparative Zoölogy, my opinion was confirmed. Mrs. Tapley says the bird was caught in October by a cat. I need not say that I am greatly pleased with having been the means of adding a new species to the list of Massachusetts birds. That the specimen was weak enough to be caught by a cat seems to indicate that it may have been *blown* to our State by a gale.— FLETCHER OSGOOD, *Chelsea, Mass.*

The Hawk Owl in Eastern Massachusetts.— Mr. Brewster's interesting article on *Surnia funerea* in the last number of 'The Auk' (Jan., 1885, p. 108) reminds me that I have in my notebook a record of an example which I have neglected to make public. This, perhaps, should be done, as it antedates, so far as I can learn, all previous records, when the year is certainly given, for Massachusetts.

The Hawk Owl is mentioned in Mr. Peabody's 'Report' of 1839, but merely in a general way —"seldom wanders into New England." It does not appear in Mr. Allen's 'List' of 1864, but is given in his 'List' of 1878, as 'very rare.' Mr. Babcock's specimen, noted in the 'American Naturalist,' 1869, was taken, as Mr. Babcock informs me, in 1862 or 1863.

In January, 1860. a neighbor called with the request that I would come and see a strange Owl he had just shot, and, being merely wing-tipped, had put in a cage with the view of making a pet of him. I found it to be of this species. His wing healed, and he became fairly tame, and on occasional visits I found he bore confinement well, and his good appetite made a constant demand on his keeper. This state of things continued more than a year; but in the spring of 1861, being exposed one night to a sudden fierce and cold storm, which beat into his cage on account of a change of wind, he was found the next morning dead under the perch. He was brought to me according to request, but his plumage, of course already injured by confinement, was in such a deplorable condition, from the soaking and filth at the bottom of the cage, that my courage was not equal to the occasion, and I reluctantly threw him away.— F. C. BROWNE, *Framingham, Mass.*

The Ptarmigan of Anticosti — a Correction. — In a recent paper * on some birds observed in the Gulf of St. Lawrence I followed Verrill † in

* 'Notes on the Birds observed during a Summer Cruise in the Gulf of St. Lawrence.' Proc. Boston Soc. Nat. Hist., Vol. XXII, Oct. 3, 1883, pp. 364-412.

† Proc. Boston Soc. Nat. Hist., Vol. IX, Dec. 1862, p. 138.

referring the Ptarmigan of Anticosti to *Lagopus albus*. My single adult specimen from that Island was a female, which, of course, lacked the black loral stripe so diagnostic of the male of *L. rupestris*. Upon comparing it with some Rock and Willow Ptarmigan from Newfoundland (the only material available at the time) I found it resembled the latter rather closely in general coloration and in this respect differed very decidedly from the former. Accordingly I concluded that it must be *L. albus*, quite overlooking certain important discrepancies in size and proportions. To tell the truth, the comparison was made very hastily, for, from the fact that the bird had been shot in a dense forest, miles from any open rocky country such as the Rock Ptarmigan is said to inhabit, I had already quite made up my mind regarding it.

A re-examination, however, convinces me that the specimen in question is really *L. rupestris*; indeed, Mr. Ridgway, who has kindly compared it for me with the material in the National Museum, decides that it is indistinguishable from the bird found on the mainland of North America at large.

It has further transpired that the Willow Ptarmigan of Newfoundland is varietally separable from true *albus*, while the Rock Ptarmigan of that island is apparently even specifically distinct from *L. rupestris*. Thus I was misled by material which, to say the least, was far from typical.

Of course it is by no means settled that all the Ptarmigan on Anticosti are *L. rupestris*, but in view of these developments Verrill's record of *albus* there (he saw no specimens) requires confirmation. — WILLIAM BREWSTER, *Cambridge, Mass.*

A Blue Heron's Meal.—There is a heronry not far from my home, and during the breeding season the great broad-winged birds can be seen day and night flying between their nests and the seaside. I once surprised one ready to start back with its finny burden, and becoming alarmed it disgorged ten good-sized fish before it mounted into the air. Is this not an unusual load for this bird to carry?—FRANCIS BAIN, *North River, P. E. I.*

Wood Ibis (*Tantalus loculator*) in Eastern New York.—Mr. Howard Burhans, of Glasco, Ulster County, N. Y., informs me that he had a fine adult Wood Ibis sent to him for mounting. The bird was shot by the late Howard Tipp, on July 8, 1884, near Glennie Falls, which is west from Glasco, and about one and a half miles from the Hudson. It was discovered in a low swampy meadow, and was so tame that it was easily approached.—A. K. FISHER, M. D., *Sing Sing, N. Y.*

Wilson's Plover in Nova Scotia.—I shot on Brier Island, April 28, 1880, a female *Ochthodromus wilsonius*, and have the same in my collection. The wind was blowing very hard from the southeast, and I think carried the bird off the shore by and beyond her intended destination; at any rate she appeared tired, alighting directly on reaching the shore, resting

a few moments, and then running to the edge of the water and bathing freely. After dressing her feathers she started along the beach in the direction in which I was sitting, a mistake not noticed by her until too late. I can find no record of the occurrence of this species so far north, therefore think its capture worthy of note.—N. S. Goss, *Topeka, Kansas.*

The Ocurrence of Chroicocephalus franklini in Wisconsin.—October 22, 1884, I took a female specimen of this Gull near the mouth of Fox River. Two other Gulls accompanied it, which I was unable to secure. They were probably the same species.—SAMUEL WELLS WILLARD, *West De Pere, Wisc.*

Rissa tridactyla kotzbuei in Washington Territory.—I can find no mention of the occurrence of the Pacific Kittiwake Gull south of Alaska, and therefore think it will be of interest for me to say that I killed a pair of the birds March 2, 1882, at Port Townsend, the only ones observed by me on the coast. I have the male in my collection.—N. S. Goss, *Topeka, Kansas.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Indian Bird Names.

TO THE EDITORS OF THE AUK:—

Sirs: Under the head of 'Correspondence' in the October number of 'The Auk' Mr. Henshaw notes with surprise my statement that "They [the Chippewa Indians] have no specific name for fully one-half of those [birds] which yearly nest before their eyes or pass by in migration." He goes on to say, "That Indians should know little of the birds, especially of the smaller kinds, that visit this country only as migrants, is not perhaps surprising, but that any considerable number of birds inhabiting their country, even of the smaller and inconspicuous kinds, should not be known to Indians and be named by them *is* surprising." At the time I made my statement I based it on the following facts. There occur in that part of Minnesota about 250 species of birds; as the Chippewas have less than 125 bird names, they name less than half of those "which yearly nest before their eyes or pass by in migration." I did not mean by this, less than half of the migrants and less than half of the breeders, but less than half of the sum total. Since reading Mr. Henshaw's letter, I have gone over the subject again, with the following results.

Dr. Hatch, in his 1880 list of Minnesota birds, gives 281 species. Of these, *at least* 240 occur during some part of every year at White Earth

Agency. The Indians have names for 114 of these 240, or 47½ per cent. There are 71 non-breeders, that is migrants and winter visitants, of which 14, or about 20 per cent., are named, and 169 breeders, of which 100 or about 60 per cent., are named. So that Mr. Henshaw is correct in judging that more than half of the breeders should have names.

The past summer I spent several months among the Otoes, a small tribe in the Indian Territory, and though no complete list of their bird names was collected, yet enough was learned to indicate that in this matter they are poverty stricken.

Morehead, Minn., Dec. 4. 1884. W. W. Cooke.

NOTES AND NEWS.

In Dr. Merriam's 'Preliminary Report of the Committee on Bird Migration,' published in the last number of 'The Auk,' attention was called to the fact that the amount of material, in the way of returns from observers, could not be properly elaborated without considerable pecuniary assistance.' Foreseeing this state of affairs, the Union, at its last meeting (Sept., 1884), instructed the Council to prepare and present a proper memorial to Congress in behalf of the Committee. We are happy to state that the appeal was so far successful that an appropriation of $5000 in aid of the work was secured through the Department of Agriculture. This sum will doubtless enable the Committee to not only carry on the present year's field-work successfully, but to do much toward getting the results of last year's work in proper shape for publication. As is well known, the Migration Committee and the Committee on the Geographical Distribution of North American Birds has been consolidated, and the Committee has now in hand not only the subject of migration, but also the elaboration of all available or obtainable data on the distribution of the species throughout the continent, a subject of well-known interest and importance.

In 1883, the legislature of Maine repealed all acts providing for the appointment of taxidermists and the taking of birds, nests, and eggs for scientific purposes. Abuses had sprung up under the old statutes, and the law-makers believed that the best remedy would be found in a policy of total prohibition. For two years, therefore, ornithology has made little progress in Maine. During the past winter the Portland Society of Natural History made a determined and successful effort to secure the passage of a law in behalf of collectors. The bill presented by the Society was adopted, with several unimportant changes, but with one provision which is objectionable — which, however, was made a *sine qua*

non by the legislative committee — viz , that but ten collector's commissions shall be in force at any one time.

THE collection of birds in the Museum of Comparative Zoölogy at Cambridge numbers 33,000 specimens, about 4000 of which are mounted and on exhibition, and represent not far from 3000 species. In consequence of financial embarrassments which the Museum has recently experienced, the increase of the collection is likely to be for the present seriously checked; but it is to be hoped that this unfortunate state of affairs may be of short duration. The museum contains much valuable ornithological material, including several thousand birds in spirits, and a very good suite of skeletons, both mounted and unmounted, besides a very fair oölogical collection, which includes that of the late Dr. T. M. Brewer.

MR. J. A. Allen, who for twenty years has had charge of Mammals and Birds at the Museum of Comparative Zoölogy at Cambridge, and where for fifteen years he has held the position of 'Assistant in Ornithology,' has accepted the curatorship of Mammalogy and Ornithology in the American Museum of Natural History, Central Park, New York City. He will enter upon the duties of his new position about May 1, after which date his address will be as here indicated. Dr. C. Hart Merriam sailed for Europe January 1, for the purpose of spending several months in scientific study at Brunswick, Germany. His return is expected within a few weeks.

WE learn with deep regret of the untimely death, by accidental drowning in the river Don, of the well-known Russian naturalist and traveller, Dr. N. Severtzow, a Corresponding Member of the A. O. U. Dr. Severtzow became first known to the scientific world through the publication of the results of his explorations in Central Asia in 1857. He promptly espoused the Darwinian doctrine of evolution, and is especially known for his valuable publications on the geographical distribution of the animals of Turkestan.

AT the January meeting of the Ridgway Ornithological Club, papers were read on 'The Hummingbirds of California,' by B. T. Gault, and 'Notes on Some Australian Birds,' by Robert Ridgway, and at the February meeting a paper on 'The Vireos of Michigan,' by Dr. Morris Gibbs.

JUVENILE and amateur publications in Natural History appear in different parts of the country with bewildering frequency, not less than twelve or fifteen such publications having started within the last twelvemonth. Most of them aim to cover a wide field, and treat of ornithology only incidentally, but several are exclusively ornithological. One of the latest to claim attention is 'The Young Ornithologist,' published and edited in Boston by A. A. Child, an eight-page monthly sheet, of which Vol. I, No. 1, bears date February, 1885.